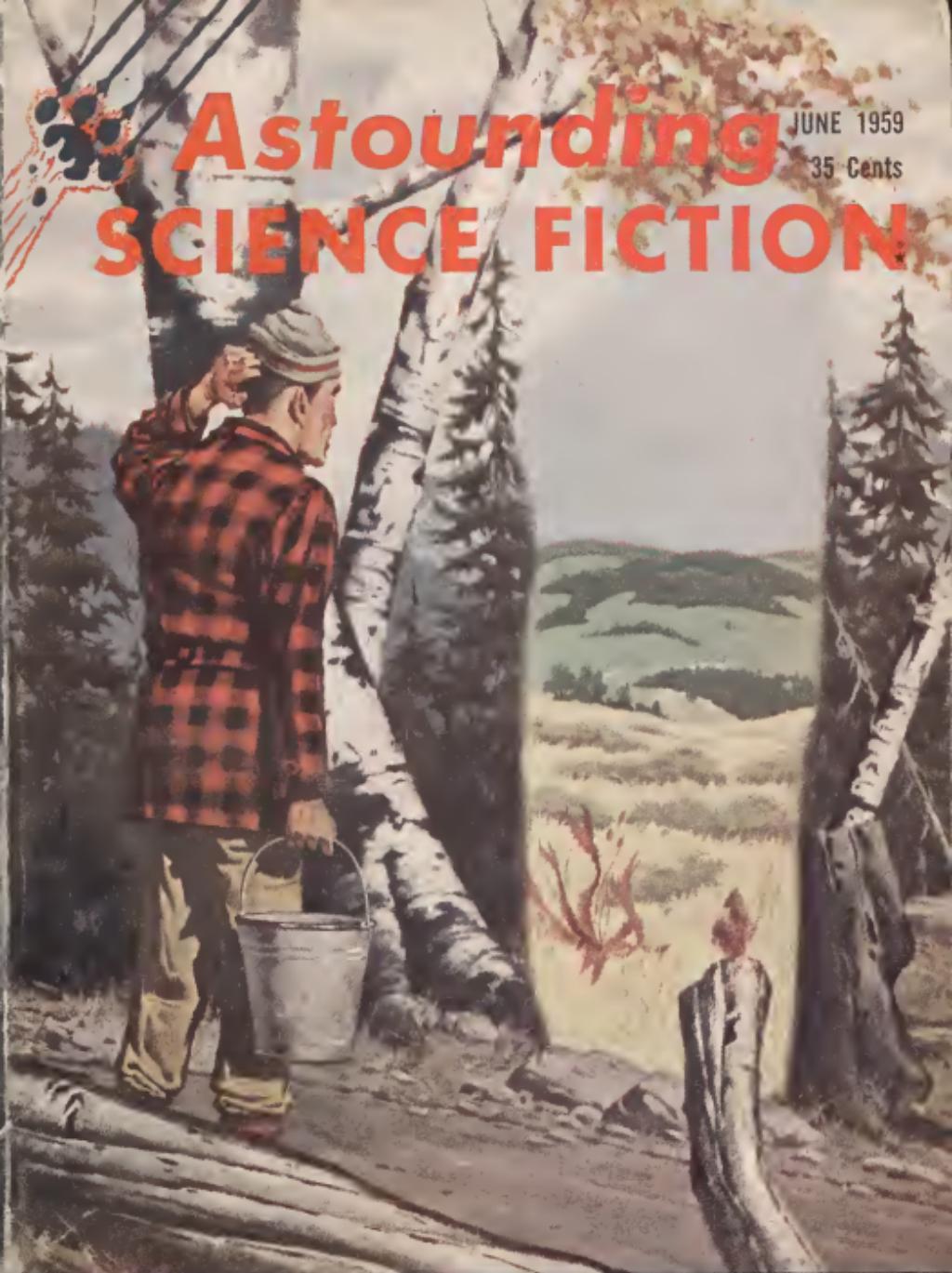


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JUNE  
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# SCIENCE IS A MENACE



HE fundamental concept in Science is that there are Truths which, willy-nilly, like-it-or-not, are true and must be accepted. However, since Science is a sort of group-entity, dependent on human beings called Scientists, Science gets its data through a filter of not-one-hundred-per-cent-scientific human beings. In consequence, it doesn't always get the truths it needs; if the human scientist is unable to accept the truth, it gets filtered out before it reaches Science.

One such Truth I suggest needs to be driven through that human filter, willy-nilly, and painful though it may be to the scientists. To wit: *Science is, by its nature, a direct, inherently intolerable, menace to the majority of the human beings on Earth!*

This is not an accidental, nor an

avoidable fact; it's inherent in the fundamental structures of Science and the majority of human beings. As direct and unavoidable as the conflict between chlorine gas and human metabolism; the two cannot coexist.

Science is inherently undemocratic; it is beneficial to a minority of the human individuals on Earth, and a direct destructive menace to the majority.

The Common Man is entirely rational in resisting and seeking to break up, Science—in trying to distort Science into Gadgetry. Gadgetry benefits him; Science menaces him.

To establish the background of this thesis, first recognize two vastly different concepts: 1. *The human race* is NOT the same thing as "all human individuals." 2. Therefore something may be of great benefit to the human

race and yet be a powerfully lethal menace to the vast majority of human individuals.

My point is that Science is precisely such a force; of immense benefit to the race, to *Mankind*, but of immense menace to individuals, to men.

The present acute problem of science-education in this country—of education itself—stems from a failure to recognize that Science is in actual fact a menace to most human individuals. It is inherently anti-democratic, benefiting the superior, and crushing the inferior. It exaggerates and increases the differences between individuals of different competence, instead of leveling those differences.

All of which statements are likely to cause shrieks of angry denial from a majority of scientists. That doesn't make them invalid—nor does quoting ten thousand statements to the contrary make them invalid, either. Only evidence establishes either validity or invalidity—and statements aren't evidence either way.

I suggest the evidence is available to you in your own personal experience; don't use my evidence—use yours.

The overlooked factor in the analysis of this problem heretofore has been the hidden assumption in the following syllogism:

1. All human beings can learn what they are taught as a way of life. (Evidence: children are born totally ignorant, and do learn.)

2. The general population is made up of human beings.
3. Therefore they can all learn a new way of life.

The logic is valid; the sneaker is a hidden assumption. It is assumed-without-statement that an adult can do anything a child can do. That is a false assumption. Perhaps the simplest example of all is the fact that any child can learn to speak a language—or three or four languages—completely without a trace of accent. Practically speaking, no adult can do so.

The immensely important point here is this: it has been assumed that because all human beings can learn a way of life at one time during their lives, this is proof that all human beings can learn a new way of life at *any* time of life.

They can't. Flatly, absolutely, and positively; for most adults it is impossible. And that has nothing whatever to do with intelligence-level, wisdom, or willingness. Try, as an adult, to learn to speak a new language without a trace of accent. Since a child can do it, it's obviously something so simple a child can do it.

Now let's use an analogy. "Plastics" today refers to a large group of chemically-complex materials which have the characteristic that they can be molded into a desired shape by application of heat and pressure, and will hold that shape with considerable tenacity thereafter. We might say that the plastic material "learns" a way of life, and, thereafter, retains

that way. The characteristic that causes us to place a certain material in the category "plastic" is that it can be molded in that way.

But there are two great families of plastics; the thermosetting materials, and the thermoplastics. The thermosetting materials—the oldest of them is, actually, bread, the Greek word for dough giving us our word *plastic*—such as bakelite, can be molded into a desired shape, and, thereafter, retain that shape. Once molded, however, they can never be remolded. Reapplying heat and pressure will simply crush the object.

The other great family, the thermoplastics, include materials such as polyethylene, the methacrylates, and—the oldest member of the family—glass. They, too, can be molded by heat and pressure—but unlike the thermosetting materials, they can be remolded to another form by reapplication of heat and pressure. Glass, of course, can be molded, remolded, and re-remolded almost indefinitely; its molecular structure is so highly stable that the heat-cycles don't break it down at all. The organic thermoplastics share the property of remoldability, but their more complex molecular structures are somewhat less stable. Too much remolding and there will be molecular breakdown.

Any human being can be molded once; in childhood, every human being is molded by his cultural environment.

This proves that all human beings are inherently plastic. *But it doesn't prove they're chronoplastic*—i.e., sub-

ject to remolding under the pressure of time. They may be chronosetting; like bakelite or other thermosetting materials, they can be molded *once and only once*.

Some human beings definitely are chronoplastic; they can learn, unlearn and relearn, and repeat that process half a dozen times. They can learn a way of life as a child, learn an entirely different one as a young adult, a third as a mature adult, and a fourth in later years.

Some . . . "You can't teach an old dog new tricks." They're chronosetting. They *can't* remold; they can only shatter.

This doesn't mean they are unintelligent; brilliant men can be quite incapable of learning a new way of life. It doesn't mean they *prefer* to be conservative, either; it means that they are inherently so constituted that, like bakelite, they *can't* change without shattering. Such a man will die "for his principles," not because he chooses to, but because he can not do otherwise.

An adult learning a new language doesn't *choose* to retain an accent; he *can't* do otherwise. Even if it means his certain death, he will retain his accent—as the history behind the word "shibolith" in its present meaning indicates.

The mammals' great advance over the reptiles was that a reptile was a pre-programmed organism; his genetic pattern determined his entire way of life. He *couldn't* learn how to

*(Continued on page 156)*

# CAT AND MOUSE

BY RALPH WILLIAMS

*The Warden needed to have a certain very obnoxious pest eliminated . . . and he knew just the pest-eradicator he needed...*

Illustrated by van Dongen





HE Harn first came to the Warden's attention through its effect on the game population of an area in World 7 of the Warden's sector. A natural ecology was being maintained on World 7 as a control for experimental seedings of intelligent life-forms in other similar worlds. How the Harn got there, the Warden never knew. In its free-moving larval state, the Harn was a ticklike creature which might have sifted through a natural inter-

dimensional rift; or it might have come through as a hitchhiker on some legitimate traveler, possibly even the Warden himself.

In any event, it was there now. Free of natural enemies and competition, it had expanded enormously. So far, the effect in the control world was localized, but this would not be the case when the Harn seeded. Prompt action was indicated.

The Warden's inclination and training was in the direction of avoiding direct intervention in the ecology



of the worlds under his jurisdiction, even in the field of predator control. He considered introduction of natural enemies of the Harn from its own world, and decided against it. That cure was as bad, if not worse, than the disease itself.

There was, however, in one adjacent world, a life-form not normally associated with the Harn; but which analysis indicated would be inimical to it, and reasonably amenable to control.

*It was worth trying, anyway.*

October 3rd, Ed Brown got up to the base cabin of his trap line with his winter's outfit.

He hung an N. C. Company calendar on the wall and started marking off the days.

October 8th, the hole into the other world opened.

In the meantime, of course, Ed had not been idle. All summer the cabin had stood empty. He got his bedding, stove, and other cabin gear down from the cache and made the place livable. The mice were thick, a good fur sign, but a nuisance otherwise. Down in the cellar hole, when he went to clear it out for the new spud crop, he found burrowings everywhere.

Well, old Tom would take care of that in short order. Tom was a big, black, bobtailed cat eleven years old who had lived with Ed since he was a kitten. Not having any feline companionship to distract him, his only interest was hunting mice. Generally he killed a lot more than he could

eat, racking the surplus in neat piles beside the trail, on the doorstep, or on a slab in the cellar. He was the best mouser in interior Alaska.

Ed propped the cellar hatch with a stick so old Tom could come and go as he pleased; and went on about his chores, working with a methodical efficiency that matched Tom's and went with his thinning gray hair and forty years in the woods. He dug the spuds he had planted that spring. He made a swing around his beaver lakes, tallying the blankets in each house. He took the canoe and moved supplies to his upper cabin. He harvested some fat mallards that had moved down on the river with the coming of skim ice on the lakes. He bucked up firewood and stacked it to move into camp with the first snow.

On the fifth morning, as he was going down to the boat landing with a pail for water, he found the hole into the other world.

Ed had never seen a hole into another world, of course, nor even heard of such a thing. He was as surprised as any one would naturally be to find one not fifty feet from their front door.

Still, his experience had been all in the direction of believing what his eyes told him. He had seen a lot of strange things in his life, and one more didn't strain him too much. He stood stockstill where he had first noticed the hole and studied it warily.

It was two steps off the trail to the left, right beside the old leaning birch, a rectangular piece of scenery that did not fit. It looked to be, as

nearly as he could judge, about man-size, six by three. At the bottom it was easy enough to see where this world left off and that one began. On the left side the two worlds matched pretty well, but on the right side there was a niggerhead in this world, the moss-covered relic of a centuries old stump, while that world continued level, so that the niggerhead was neatly sliced in two. Also, the vegetation was different, mossy on this side, grassy on that.

On up around the hole, though, it was harder to tell. There was no clear-cut line, just the difference in what you could see through it. In the other world, the ground seemed to fall away, with low scrubby brush in the foreground. Then, a mile or so away, there were rising hills with hardwood forests of some kind, still green with summer, covering them.

Ed stepped cautiously to one side. The view through the hole narrowed, as if it faced the trail squarely. He edged around the old birch to get behind it, and from that side there was no hole, just the same old Alaskan scenery, birch and rose bushes and spruce. From the front, though, it was still there.

He cut an alder shoot about eight feet long, trimmed it, and poked it through the hole. It went through easily enough. He prodded at the sod in the other world, digging up small tufts. When he pulled the stick back, some of the other world dirt was on the sharp end. It looked and smelled just about like any dirt.

Old Tom came stretching out into

the morning sun and stalked over to investigate. After a careful inspection of the hole he settled down with his paws tucked under him to watch. Ed took a flat round can from his pocket, lined his lip frugally with snuff, and sat down on the up-ended bucket to watch too. At the moment, that seemed the likeliest thing to do.

*It was nearly swarming time, the Harn had many things to preoccupy it, but it spared one unit to watch the hole into the other world. So far, nothing much had happened. A large biped had found the opening from the other side. It had been joined by a smaller quadruped; but neither showed any indication yet of coming through. The sun was shining through the hole, a large young yellow sun, and the air was crisp, with sharp interesting odors.*

*The biped ejected a thin squirt of brown liquid through the hole—venom of some sort, apparently. The Harn hastily drew back out of range.*

The hole into the other world stayed there, as unobtrusively fixed as if it had been there since the beginning of time. Nothing came through, and nothing moved in the other world but leaves stirring now and then with a breeze, clouds drifting across the sky. Ed began to realize it was getting late in the morning, and he had not yet had breakfast. He left old Tom to watch the hole, got stiffly to his feet and went on down the trail to get the pail of water he had started for. From the cabin door, he could

still see the hole into the other world. He kept one eye on it while he cooked breakfast.

As he was finishing his second cup of coffee, he noticed the view into the other world becoming duller, dimming in a peculiar fashion. He left the dirty dishes and went over to look more closely. What was happening, he found, was just that it was getting dark in the other world. The effect was strange, much like looking out the door of a brightly lighted room at dusk. The edges of the hole cast a very clearly marked shadow now, and outside this shaft of sunlight the view faded, until a few yards away it was impossible to make out any detail.

Presently the stars came out. Ed was not an astronomer, but he had a woodsman's knowledge of the sky. He could find nothing familiar in any of the stars he saw. In some way, that was more unsettling than the hole itself had been.

After he had finished the dishes, he cut two gee-pole spruce, trimmed them, and stuck one on each side of the hole. He got some thin thread he used to tie beaver snares and wove it back and forth between the poles, rigging a tin can alarm. It seemed likely someone or something had put the hole there, it had not just happened. If anything came through, Ed wanted to know about it. Just to make extra sure, he got some number three traps and made a few blind sets in front of the hole.

Then he went back to his chores. Whatever was going to happen with

the hole would happen when it happened, and winter was still coming.

He set some babiche to soak for mending his snowshoes. He ran the net he had set at the edge of the eddy for late silvers and took out two fish. Old Tom had pretty well cleaned up the mice in the cellar hole, but they were still burrowing around the sills of the lean-to. Ed took a shovel and opened up a hole so Tom could get under the lean-to floor. He got out his needles, palm, thread, and wax; and mended his winter moccasins.

Off and on, he checked the hole into the other world. There was nothing but the slow progression of alien stars across the sky. Finally old Tom grew bored and left to investigate the hole under the lean-to. Shortly there were scutterings and squeakings as evidence that he, too, had got back to business.

Toward evening, Ed got to wondering how a living creature would take transition into the other world. He had no intention of trying it himself until he knew a lot more about it, but he thought he might be able to scare up a surrogate. Out by the wood pile some live-traps were piled under a spruce, from the time when Ed had been catching marten for the Fish and Wildlife to transplant. One was still in pretty fair shape. He patched it up and set it among the cottonwoods at the head of the bar, where there were some rabbit trails.

When he went to bed it was still dark in the other world. He left the

cabin door ajar so he could see it from his bed and set his shotgun, loaded with 00 buck, handy.

Nearing sixty, Ed was not a sound sleeper, even when he had nothing on his mind. About ten it started to get light in the other world, and that woke him up. He padded out to look, but there was no change, it looked about the same as yesterday. He went back to bed.

The next morning there was a rabbit in the live-trap. With a pole, Ed pushed the trap with the rabbit in it through into the other world and watched. Nothing happened. After a while the rabbit began nibbling at some spears of grass that pushed through the wire of the cage. Ed pulled it back and examined the rabbit carefully. It seemed healthy and about as happy as a rabbit could expect to be in a cage.

It did not get dark in the other world till about noon, that day; and about seven, when it was dark in both worlds, Ed heard the jangle of the tin can alarm, followed by the snap of one of the steel traps.

He took a flashlight and found a small hooved animal, hardly bigger than old Tom, rearing and bucking with a broken leg in the trap. It had sharp little spike horns, only a few inches long, but mean. Ed got several painful jabs before he got the animal tied up and out of the trap. He re-strung the alarm, then took his catch into the cabin to examine.

It was herbivorous and adult, from the looks of its teeth and hoofs, though it only weighed about fifteen

pounds. As an approximation, Ed decided it was female. When he killed it and opened it up, at first glance it looked reasonably familiar, on closer study less so.

The blood, anyway, was red; not blue or yellow or green; and the bones were bones, just odd-shaped.

Ed cut off a slice of heart and tossed it to old Tom. The cat sniffed it dubiously and then decided he liked it. He meowed for more. Ed gave it to him and fried a small sliver of ham. It smelled and tasted fine, but Ed contented himself with a single delicate nibble, pending further developments. Anyway, it was beginning to look like a little exploration would be feasible.

*The Harn, also, was well-satisfied with the way things were going. It had been a strain to pass up the juicy little quadruped in the cage, but the inhabitants of the other world seemed shy, and the Harn did not wish to frighten them. At least, it knew now that life could come through the hole, and the small herbivore it had herded through confirmed that passage in the opposite direction was equally possible—plus a gratis demonstration of the other world's pitiful defenses. At swarming time, the whole new world would be open to embryo Harn, as well as this world it presently occupied.*

*It looked like a really notable swarming. The Harn budded three more planters on the forcing stem, to be ready to take full advantage of it.*

It got light in the other world at one in the morning that night. Ed had the days there pretty well pegged now. They were roughly twenty-seven hours, of which about thirteen hours were dark. Not too high a latitude, apparently, and probably late summer by the looks of the vegetation.

He got up a little before daylight and looked at the rabbit and old Tom. Both seemed to be doing nicely. Old Tom was hungry for more other-world meat. Ed gave it to him and made up a light pack. After some thought, he took the .450 bear gun he used for back-up when guiding. Whatever he ran into over there, the .450—a model 71 throwing a 400 grain slug at 2100 fps—should handle it.

The first step through into the other world was a queasy one, but it turned out to be much the same as any other step. The only difference was that now he was in the other world looking back. From this side, the niggerhead at the threshold was sliced sharply, but it had been kicked down a little when he came through, and what with shoving the cage through and pulling it back, so that some clods of moss and dirt were scattered in the other world. For some reason, that made Ed feel better, it seemed to make the joining of the two worlds a little more permanent.

Still, it had come sudden, and it might go sudden. Ed went back into his own world and got an ax, a saw, more ammunition, salt, a heavy sleep-

ing robe, a few other possibles. He brought them through and piled them in the other world, covering them with a scrap of old tarp. He cut a couple of poles, peeled them, and stuck them in the ground to mark the hole from this side.

Then he looked around.

He stood on the shoulder of a hill, in a game trail that ran down toward a stream below, in what seemed to be a fairly recent burn. There were charred stumps, and the growth was small stuff, with some saplings pushing up through. There was timber in the valley below, though, and on the hills beyond, deciduous, somewhat like oak. South was where east had been in his own world, and the sun seemed smaller, but brighter. The sky was a very dark blue. He seemed lighter in this world, there was a spring in his step he had not known for twenty years. He looked at his compass. It checked with the direction of the sun.

He studied the trail. It had seen a lot of use, but less in recent weeks. There were sharp hoof-prints of the animal he had caught, larger hoof-prints, vague pad-marks of various sizes, but nothing that looked human. The trail went under a charred tree trunk at a height that was not comfortable for a man, and the spacing of the steps around the gnarled roots of an old stump did not fit a man's stride.

He did not notice the Harn creature at all—which was understandable, it was well camouflaged.

He worked circumspectly down the

trail, staying a little off it, studying tracks and droppings, noticing evidences of browsing on the shrubs—mostly old—pausing to examine tufts of hair and an occasional feather. Halfway down the slope he flushed a bird about ptarmigan-size, grayish brown in color.

The trail was more marked where it went into the timber. It wound through the trees for a few hundred yards and came out on a canoe-sized stream. Here it forked. One trail crossed the stream and went up the hill on the other side, the other followed the stream up the valley.

*The Harn followed Ed's movements, observing carefully. It needed a specimen from the other world, and this biped would serve nicely, but it might as well learn as much as possible about him first. It could always pick him up some time before he returned to his own world. Just to make sure, it sent a stinging unit to guard the entrance.*

All his life, except for a short period in France, Ed had been a hunter, never hunted. Still, you don't grow old in the woods by jumping without looking. Coming into a new situation, he was wary as an old wolf. There was a little shoulder right above the fork in the trail. He stood there for several minutes, looking things over, and then went down and crossed the stream at the next riffle, above the ford. By doing so, although he did not know it, he missed the

trap the Harn maintained at the ford for chance passers-by.

On the other side of the creek, the trail ran angling off downstream, skirted a small lake hidden in the trees, climbed over another low shoulder and dropped into a second valley. As Ed followed along it, he began to notice a few more signs of life—birds, small scurriers on the ground and in tree tops—and this set him thinking. The country had a picked-over feel to it, a hunted and trapped-out feel, worse where he had first come through, but still noticeable here.

*The Harn did not like to cross water, it could, but it did not like to.*

Ed looked at the sun. It was getting down in the sky. If there was any activity at all around here, the ford at dusk would be as likely a place as any to find it. He worked back along the ridge to a point above where he judged the ford to be. The breeze was drawing up the valley, but favoring the other side a little. He dropped down and crossed the stream a quarter mile above the ford, climbed well above the trail and worked along the hillside until he was in a position where he could watch both the ford and the fork in the trail. He squatted down against a tree in a comfortable position, laid his gun across his knees, and rummaged in his pack for the cold flap-jacks, wrapped around slices of duck breast, which he had packed for lunch.

After he had finished eating he drank from his canteen—the water in this world might be good, it might not, there was no point in taking chances till he could try it on the cat—and took an economical chew of snuff. He settled back to wait.

*The Harn had lost Ed after he crossed the creek—it used a fallen tree quite a way further up for its own crossing—and did not pick him up again until just before he crossed back. Now, however, he had been immobile for several minutes. This looked like about as good a time as any to make the pickup. The Harn had a stinging unit just about positioned, and it had dispatched a carrier to stand by.*

After a while, sitting there, Ed

began to feel uneasy. The timber was big here, and open underneath, almost parklike. The nearest cover was fifty or sixty yards off to his left, a little tangle of brush where a tree had fallen and let a shaft of sunlight through.

It looked possible, but it didn't feel quite right. Still, it was about the only place anything big enough to bother him could hide. The feeling was getting stronger, the back hairs on Ed's neck were starting to stand up now. Without visible movement, or even noticing himself that he was doing it, he let awareness run over his body, checking the position and stiffness of his legs—he had been sitting there quite a while—the balance of the gun across his knees, the nearness of his thumb to the hammer.

Thoughtfully, still studying the



patch of brush, he spat a thin stream over his left shoulder at a pile of leaves a few feet away.

Thinking about it later, Ed could almost have sworn the tobacco juice sizzled as it hit. Actually, this was probably imaginary. The stinging unit was not that sensitive to tobacco, though it was sensitive enough. As the drops splattered it, the pile of leaves erupted with a snuffling hiss like an overloaded teakettle into a tornado of bucking, twisting activity.

Ed's reflexes were not quite as fast as they had been when he was young, but they were better educated. Also, he was already keyed-up. Almost as it started, the flurry in the leaves stopped with the roar of his rifle. Fired like that, the heavy gun just about took his hand off, but he did not notice it at the moment. He came erect in a quick scramble, jacking in a fresh round as he did so. The scene took on that strange timeless aspect it often does in moments of emergency, with a man's whole being focused on the fleeting *now*—you know, in an academic sort of way, that things are moving fast, you are moving fast yourself, but there seems plenty of time to make decisions, to look things over and decide what has to be done, to move precisely, with minimum effort and maximum effect.

Whatever the thing at his feet was, it was out of the picture now—it had not even twitched after the heavy bullet tore through it. There was a stomping rush in the little thicket he had been watching. Ed took two long

quick steps to one side to clear a couple of trees, threw up the gun and fired as something flashed across a thin spot in the brush. He heard the whack of the bullet in flesh and fired again. Ordinarily he did not like to shoot at things he could not see clearly, but this did not seem the time to be overly finicky. There was no further movement in the brush.

He stood there several long moments, listening, and there was no further movement anywhere. He eased the hammer down, fed in three rounds to replace those he had used, and walked slowly back to the first thing he had shot.

At that range, the bullet had not opened up, but it had not needed to. It had practically exploded the creature anyway—the .450 has two tons of striking energy at the muzzle. From what was left, Ed deduced a smallish, rabbit-sized thing, smooth-skinned, muscular, many-legged, flattish, mottled to camouflage perfectly in the leaves. There was a head at one end, mostly undamaged since it had been at the end of a long muscular neck, with a pair of glazing beady eyes and a surprisingly small mouth. When Ed pressed on the muscles at the base of the skull, the mouth gaped roundly and a two-inch long spine slid smoothly out of an inconspicuous slot just below it.

At middling distances or better, Ed could still see as well as ever, but close up he needed help. He got out his pocket magnifier and studied the spine. It looked hollow, grooved back for a distance from the point. A drop

of milky looking substance trembled on its tip.

Ed nodded thoughtfully to himself. This was what had made him uneasy, he was pretty sure. What was the thing in the brush, then? Innocent bystander? He got stiffly to his feet, conscious now of the ache in his wrist that had taken most of the recoil of the first shot, the torn web between his right thumb and forefinger where the hammer spur had bitten in; and walked over to the thicket.

The thing in the brush was larger, quite a bit larger, and the bullets had not torn it up so badly. It lay sprawled with three of its eight legs doubled under it, a bear-sized animal with a gaping, cavernous, toothless mouth out of all proportion to the slender body which seemed designed mainly as a frame for the muscular legs. It was not quite dead. As Ed came up it struggled feebly to get up, but one of the heavy slugs had evidently hit the spine, or whatever carried communications to the hindquarters. It fell back, shuddering convulsively, and suddenly regurgitated a small, furry animal.

Ed stepped back quickly to bring his rifle to bear, but the newest arrival was obviously already dead.

He turned his attention back to the larger animal. It, too, was dead now. There was an obvious family resemblance to the smaller one he had shot in the leaves. Both were smooth-skinned, many-legged, and now that he looked closely he could see this

one had two mouths, a small one just under the nostrils, purse-lipped and tiny in its huge face but quite like that of the other creature. Neither looked even remotely like anything he had ever seen before.

He laid down his rifle and took out his knife.

Ten minutes later, he knew quite a bit about the thing, but what he knew did not make much sense. In the first place, its blood *was* green, a yellowish pussy green. In the second place, the larger mouth, complete with jaws and impressive musculature, opened not into a digestive system, but into a large closed pouch which comprised most of the animal's torso. There was no proper digestive system at all, only a rudimentary gut, heavily laced with blood vessels, terminating at one end in the small second mouth, at the other in an even smaller anus. Otherwise, the thing had no insides except a good pair of lungs and a stout heart—none at all. Bone, muscle, lung, heart—plus the ridiculously inadequate gut—that was it.

What about the small, furry, animal then; the one the other had been carrying in its pouch? There was nothing much out-of-the-way about it—a feline sort of carnivore, something like a marten. The fur looked interesting, and he skinned it out, casing the hide. On the left ham, the skin was punctured and there was a swollen, bluish area—about the sort of wound that would be made by the fang of the first thing he had shot. Ed squatted back on his heels, study-

ing it and putting two and two together. What two and two made was pretty hard to believe, but it fitted the evidence.

He wiped his knife carefully on the grass, put it back in its sheath, and got to his feet. Suddenly, the feeling that he was not alone recurred. He looked quickly around.

Back where he had shot the first thing, a man in forest-green whipcord trousers and jacket was leaning over, hands on knees, looking at the remains. The man looked up and met Ed's eyes. He nodded casually and walked over to the second thing, prodded it with his toe. After a long moment he nodded again to Ed, smiled briefly, and winked out.

Ed stared at the empty air where the other man had been, mouth open. It was just a little too much. A lot of things had happened to him in the last few days, he had been able to take most of them more or less as they came along, but after all, he wasn't a chicken any more, he was pushing sixty, and there is a limit to what a man should have to put up with at that age. The thought of his snug cabin, with a good fire going, moosemeat bubbling in the pot, the gas lantern hissing, and the bottle of Hudson's Bay rum he had tucked under the eaves against just such an occasion as this, was suddenly very appealing.

Besides, it was getting late, and he didn't think he cared to be stumbling around this world in the dark.

He elbowed his pack up, hooked the left shoulder strap, and headed

for home, staying off the trail in ordinary caution and watching his footing, but moving pretty fast just the same.

Actually, he need not have been so careful.

The Harn had been surprised and shocked by the explosive violence of the man's reaction to a routine harvesting maneuver. It was a relatively young Harn, but it retained memories of its own world, where there were also nasty, violent things which killed Harn. It was not pleasant to think that it might have evoked some such monster in this hitherto peaceful place.

Then, to top that, there had been the sudden appearance of the Warden. The Harn, of course, saw the Warden not as a man, but in its true aspect, which was not at all friendly.

All in all, this did not seem the moment to start any new adventures. The Harn pulled in all its mobile units, including the stinger it had left at the hole into the other world. It huddled protectively together in its nest, considering these new developments.

By ten that evening, Ed, in conference with old Tom and the bottle of Hudson's Bay, had done considerable hard thinking, pro and con.

Of course, he didn't *have* to go into the other world, just because the hole was there. He could block it off, seal it up with timbers and forget it.

He sat there and thought about this, absently smoothing the strange fur on his knee. For an old-timer like

himself, things weren't too hot in this world. Fur didn't bring much of a price any more, and he couldn't get it in as he had when he was younger. His wants were simple, but there was a certain rock-bottom minimum he had to have. Too, the winters were starting to bother him a little, the arthritis in his hands was getting worse every year, times he hardly had the strength in his left hand, which was the worst, to hold an ax. Another five, ten, years and it would be the Pioneers' Home for him—if he did not get stove up or sick sooner and die right here in the cabin, too helpless to cut wood for the fire. He had helped bury enough others, bed and all when they didn't come down the river at breakup and somebody had to go up and look for them, to know it was possible.

The other world was milder, it had game and fur—good fur, too, from the looks of it, something new that could lick any mutation or synthetic on the market, and the income tax had still left a few fellows who could pay through the nose to see their women look nice.

And, the country was new. He'd never thought he'd have a crack at a new country again, a new, *good* country. Often, he'd thought how lucky people had been who were born a hundred and fifty years ago, moving into an easy, rich country like the Ohio or Kentucky when it was new, instead of the bitter North.

The Harn would be a nuisance—Ed did not think of it as the Harn, of course, but just as "they"—but he

supposed he could find a way to clean them out. A man generally could, if varmints got troublesome enough.

And the man in forest-green whipcord, well, he *could* have been just an hallucination. Ed did not really believe in hallucinations, but he had heard about them, and there was always a first time.

Ed sighed, looked at the clock, measured the bottle with his eye—still better than three quarters full.

All in all, he guessed, he'd leave the door into the other world open.

He put old Tom out and went to bed.

The first order of business seemed to be to get better acquainted with the Harn, and first thing in the morning he set about it. He took the rabbit out of the live box and tethered it in a spot in the other world close to the hole, where raw earth had been exposed by a big blowdown, sweeping the ground afterward to clear it of tracks.

Getting better acquainted with the Harn, though, did not mean he had to have it come in and crawl in bed with him.

Before going to bed the night before, he had set half a can of snuff to steep in some water. He loaded a bug gun with this and sprayed the ground around the hole into the other world. From the reaction yesterday, he judged the stinging units did not like tobacco juice, and this should discourage them from coming through.

He checked his bear snares and

found three in good enough shape to satisfy him—the large Harn beast, he suspected, would be about like a grizzly to hold. Three would hardly be enough for a serious trapping program. Ed made his own snares from old aircraft control cable, using a lock of his own devising which slid smoothly and cinched down tight and permanently. He got out his roll of wire and box of locks and started making up some more, sitting where he could watch the rabbit he had staked out.

By the middle of the afternoon the snares were done, but there had been no action with the rabbit, nor was there for the rest of the day.

In the morning, though, it was gone. There were three new sets of tracks in the bare spot—two smaller ones, either of which would have fitted the stinging unit, and what looked like a carrier's. The action was clear enough. The small things had prowled around the rabbit for some time, stopping frequently as if uncertain and suspicious. Finally, one had moved in, with a little flurry of action when it met the rabbit. Then it had moved back and squatted again.

The big tracks came directly to the rabbit and went right out again. They were heavy enough to be clear in the grass beyond the bare spot.

Ed went back to the cabin and rummaged till he found a pair of snake-proof pants a Stateside sport had once given him—heavy duck with an interlining of woven wire. They were heavy and uncomfortable to wear,

and about as useless as wings on a pig in Alaska, where there are no snakes; but they had been brand-new and expensive when given to him, and he had put them away, thinking vaguely he might find a use for them some day. It looked like that day might be now.

He slipped them on, took his rifle and hunting pack, and set out to follow the animal that had taken the rabbit.

The trail showed well in the morning dew, going straight away along the hillside as if the thing were headed some place definite. Ed followed along for a quarter mile or so, then found himself on a fairly well beaten path, which presently joined another, and then another, till it was a definitely well used trail. It began to look to him like the thing might have a den of some sort, and he might be getting pretty close to it. He left the trail and climbed up into a lone tall tree, fire-scorched but still struggling for life. From there, he could follow the trail pretty well with his glasses for a couple of hundred yards before he lost it. Finally, he settled on a spot under an old burnt stump as a likely spot for the den.

He focused the glasses carefully and after a few minutes saw a flash of movement there, as if something had slipped in or out. Nothing else happened for about an hour. Then the grass along one of the trails began to wave and a large beast, similar to the one he had shot, trotted into sight. It slipped in under the stump and disappeared.

For the rest of the morning, nothing went in or out.

There was a very good reason for this, and Ed was it.

All night and day after he shot the stinging unit and the carrier unit, the Harn had stayed in its nest. By the second evening, it was getting hungry. It ventured out and found a few morsels, but the organized hunting network it ordinarily maintained had been disrupted, it had lost track of things, and the pickings were poor. Then it stumbled on the rabbit Ed had staked out.

Its first impulse was to leave the rabbit strictly alone. In spite of its early promise, the other world had so far given nothing but trouble. On the other hand, the rabbit was meat, and very good meat, by the smell and looks of it . . .

The Harn kept its observation unit prowling irresolutely around the target for half the night before it finally gave in to appetite and sent in a stinger to finish the rabbit off, a carrier to pick it up.

It was still uneasy about this when it noticed Ed near the nest the next morning, confirming its fears. It promptly broke up the net it had been re-establishing and pulled all units back in. Maybe if it left him strictly alone, he might still go on about his business, whatever that was, and let the Harn get back to its harvesting.

By noon, Ed was getting pretty stiff sitting in the tree. He climbed

down and eased over toward the stump, watching where he set his feet. He was pretty sure the snake-proof pants would stop the stingers, but he saw no point in putting them to the test until he had to.

About fifty yards away, he got a good view, and it did look like there might be a sizable hole under the stump. He studied it carefully with the glasses. There was a smooth-beaten mound in front, and exposed roots were worn slick.

As he got closer, he noticed an unpleasant smell, and near the mouth of the den he got a sudden whiff that almost gagged him—a sour, acid, carrion stink like a buzzard's nest. He moved back a little. The hole was wide and fairly high, two or three feet, but too dark to see back into. Still, he had a sense of something stirring there not too far back.

Ed had considerable respect for caves and dens with unseen occupants—he had once helped carry in the bodies of two men who had poked a stick into a spring grizzly's den. At the same time, he wanted pretty badly to know what was in there. He suspected there was a good deal more than what he had already seen.

The bug gun loaded with tobacco juice was in his pack, and a flashlight, a small light one designed for a lady's purse which he always carried when away from camp. He got them out and leaned his rifle against a root sticking out just to the left of the den. Taking the bug gun in his left hand and the flashlight in his right, he stooped over to shine the light in,



keeping as well clear of the entrance as possible.

All in all, he must have got about a five-second look, which is a lot longer than it sounds when things are happening.

His first impression was a jumble—eyes, scurrying movement, and bulk. Then things started to shape up. About ten feet back from the entrance was a huge, flattish, naked, scabrous bulk, pimpled with finger-sized teats. Clustered around and behind this were a tangle of stinging units, carrier units, observation units. Some had their mouths fixed to teats.

For a long second or two the scene stayed frozen.

Then the front edge of the bulk split and began to gape. Ed found himself looking down a manhole-sized gullet into a shallow puddle of slime with bits of bone sticking up here and there. Toward the near end a soggy mass of fur that might have been the rabbit seemed to be visibly melting down. At the same moment, the tangle of lesser monsters sorted themselves out and a wave of stingers came boiling out at him.

Ed dropped the flashlight, gave two mighty pumps of the bug gun, and jumped clear of the entrance. For a moment, the den mouth boiled with stingers, hissing and bucking in agony. Ed sprayed them heavily again, snatched up his rifle, and ran, looking back over his shoulder. The stingers showed no inclination to follow, though, the tobacco juice seemed to be keeping them well occupied for the moment.

Halfway home, Ed had to stop and rest for a moment while he took a spell of shuddering and gagging as a sudden picture of the slimy gullet came into his mind, with Ed Brown laying where the rabbit had been, melting down into a stinking soup of bones and gobbets of flesh.

When he got to the hole, his arrangement of tin cans, traps, and tobacco juice no longer looked nearly as secure as it had. He got his ax and cut two stout posts, framing the hole; built a stout slab door and hung it from them. Then he drove stakes close together at the threshold, to foil any attempts to dig under, and trimmed a sill tight to the door.

His feeling in this matter, as it happened, was sound.

The Harn was beginning to develop a pretty strong dislike for Ed Brown. Three of its stinging units were dead, and most of the rest were in poor shape, thanks to the tobacco spray. It had got a little whiff of the stuff itself, not enough to do any serious damage ordinarily, but right now, so close to swarming time—

Ed was going to have to go.

So far, in this world, the Harn had needed only the three basic types of mobile units. There were other standard types, however, for dealing with more complicated situations. As it happened, a couple of carrier embryos were at just about the right stage. With a little forcing, they could be brought on in not too long a time. Meanwhile, the Harn would do what it could with the material available.

When Ed came through the next day to set his snares, the Harn was prepared to test his snakeproof pants. They held, which was disconcerting to the Harn, but it was a hard creature to convince, once thoroughly aroused. Ed was not too sure of how well the pants would stand up to persistent assault himself. After the third ambush, he took to spraying suspicious looking spots with tobacco juice. He shot two more stingers in this way, but it slowed him up quite a bit. It took him all day to make four sets.

In the next three days he made a dozen sets and caught two carriers. Then, the fourth day, as he adjusted a snare, a seeming root suddenly came to life and slashed at his hand. He was wearing gloves to keep his scent from the snares, and the fang caught the glove and just grazed the ball of his left thumb. The hatchet he had been using to cut a toggle was lying by his knee. He snatched it up and chopped the stinger before it could strike again, then yanked off the glove and looked at his hand. A thin scratch, beaded with drops of blood, showed on the flesh. Unhesitatingly, he drew the razor edge of the hatchet across it, sucked and spat, sucked and spat again and again. Then he started for home.

He barely made it. By the time he got to the hole, he was a very sick man. He latched the door, stumbled into the cabin and fell on the bed.

It was several days before he was able to be about again, his hand still partly paralyzed.

During that time, the situation changed. The Harn took the offensive.

Ed's first notice of this was a rhythmic crashing outside the cabin. He managed to crawl to where he could see the gate he had built to block the hole into the other world. It was shaking from repeated batterings from the other side. Dragging his rifle with his good hand, he scurried down to where he could see through the chinks in the slab door. Two of the carrier units were there, taking turns slamming their full weight against it. He had built that gate skookum, but not to take something like that.

He noted carefully where they were hitting it, then backed off twenty feet and laid the .450 across a log. He let them hit the door twice more to get the timing before he loosed off a shot, at the moment of impact. The battering stopped abruptly, and through the chinks he could see a bulk piled against the gate.

For a while there was no more action. Then, after a few tentative butts at the door, the battering started again. This time, Ed wasn't so lucky. The battering stopped when he fired, but he got an impression that the carrier ran off. He thought he might have hit it, but not mortally.

In an hour or so the Harn was back, and it kept coming back. Ed began to worry about his ammunition, which was not unlimited. Ordinarily, two or three boxes lasted him through the winter. He got his .30-06, for which he had a sugar sack

full of military ammunition. The light full-patch stuff did not have the discouraging effect of the .450, though, and he had to shoot a lot oftener.

Another thing, he wasn't getting any rest, which was bad in his already weakened condition. Every time he dozed off the battering would start again, and he would have to wake up and snap a few shots through the door. He held pretty much on one spot, not wanting to shoot the door to pieces, but the Harn noticed this, and started hitting the door in other places.

The second day of the attack, the door came down. It had been pretty shaky for some time, and Ed had got the cabin ready for a siege, filling butter kegs with water and nailing up the windows. As the Harn poured through, he shot several and then broke for the cabin. A carrier ran at him full tilt, bent on bowling him over. Once off his feet, he would have been easy meat for one of the stingers. He sidestepped, swung his shotgun up in one hand—he had kept it handy for the close fighting—and blew the carrier's spine in half. He had to kick it aside to slam the cabin door.

For a few minutes, then, things were pretty hectic. Ed went from one to another of the loopholes he had cut, blasting first with the shotgun as the Harn crowded around, then using the .30 as they grew more cautious.

After the first rush, it was obvious to the Harn that the cabin was going

to be a tough nut to crack. On the other hand, there was no rush about it either. Necessarily, it had let its hunting go the past several days while it concentrated on Ed. It was pretty hungry, and it was in rich pickings now—Ed had always kept from disturbing game close to the cabin, partly because he liked to see it around, and partly because he had an idea that some day he might be in a fix where he couldn't travel very well, and would want meat close to hand. The Harn felt no such compunctions. The stinging units spread through the woods, and shortly a steady procession of loaded carriers began to stream back through the hole. Ed picked off the first few, but then the Harn found it could route them up the river trail in such a way that he got only a glimpse as they flashed through the hole. After that he did not hit very many.

Ed stopped shooting. He was getting short on ammunition for the .30 now, too. He counted up. There were eighteen rounds for the .450, half a box of 220 grain soft point for the .30 plus about the same amount of military stuff, and a handful of shotgun shells. Of course, there was still the .30 Luger with a couple of boxes, and the .22; but they were not much account for this kind of work.

He looked at the cabin door. It was stout, built of hewed three-inch slabs, but it wouldn't last forever against the kind of beating the gate had got. Even if it did, he was going to run out of water eventually.

Ed thought about that for a while, sitting at the table staring at the little pile of cartridges. He was going to be run out of here sooner or later, he might as well pick his own time, and now seemed about as good as any, while the Harn was busy exploring and hunting.

He sighed and got up to rummage around the cabin. The snakeproof pants had done real good, but he did not trust them entirely. There was some sheet iron laid over the ceiling joists, which he had brought up to make new stoves for his line camps. He got this down and cut it into small pieces. Around the edges he drilled a number of small holes. Then he got out his mending gear and began sewing the plates, in an overlapping pattern, to the legs of the snakeproof pants and to an old pair of moccasins. When he finished, he was pretty well armored as far as his crotch. It was an awkward outfit to move around in, but as long as he was able to stay on his feet, he figured he would be reasonably secure from the stingers. As for the bigger ones, he would just have to depend on seeing them first, and the .450.

Next, he needed some gasoline. The fuel cache was under a big spruce, about twenty yards from the door. He made the round of his loopholes. There were no Harn in sight, they were apparently ignoring him for now. He slipped out the door, closing it securely behind him, and started for the cache.

As he stepped out, a stinger came from under the sill log and lashed

at his foot. He killed it with the ax beside the door, saving a cartridge, and went on, walking fairly fast but planting his feet carefully, a little awkward in his armor. He picked up a five-gallon can of gas, a quart of motor oil, and the twenty feet of garden hose he used for siphoning gas down the bank to the boat. On the way back, another stinger hit him. He kicked it aside, not wanting to set down his load, and it came at him again and again. Just outside the door, he finally caught it under a heel and methodically trampled it to death. Then he snatched open the door, tossed the stuff inside, and pulled it quickly shut behind him.

So far, good enough.

He lashed the gas can solidly to his packboard, slipped the end of the hose into the flexible spout and wired it tight. Then he cut up an old wool undershirt and wrapped the pieces around miscellaneous junk—old nuts and bolts, chunks of leadline, anything to make up half a dozen packages of good throwing heft. He soaked these in oil and stowed them in a musette bag which he snapped to the D-rings of the pack.

One of the metal plates on his moccasin was hanging by a thread, probably he had torn it loose in the scuffle at the door. They weren't going to take too much kicking and banging around, he could see, and once he was on his way, it wouldn't be a very good idea to be caught bending over with his bare hands at ground level to fix them. On the other hand, he couldn't be using all

his cartridges on the stingers, either, he had to save them for the carriers. He thought about this some while mending the moccasin, and decided to take the bug gun. It might not kill the stingers, but it ought to discourage them enough so they wouldn't keep pestering him.

With his bad left arm, he had trouble getting the pack on his back. He finally managed by swinging it up on the table first. It was not too much of a load, forty or fifty pounds he guessed. Still, shaky as he was, it was about as much as he could manage. He had intended to just try it on for size, but after he got it up he thought: well, why not now? He picked up the .450, stowed the extra cartridges in his pocket, checked to make sure he had matches, hung the bug gun on his belt, and opened the door.

It was just getting dusk, but the other world was in broad daylight, the days and nights were almost completely reversed again. As he stepped through the hole, the first stinger struck. He gave it a good squirt of tobacco juice. It went bucking and twisting off and he went on, stepping carefully and solidly.

Luckily, most of the Harn was foraging in the new world. Two more stingers ambushed him, but the tobacco juice got rid of them, and he had no serious trouble till he got close to the den. Two carriers came out and rushed him there. He shot them both and then killed the stinger that was pecking at his shins. He

moved quickly now, he had an idea that in about a minute all hell would break loose. He swung the pack down on the uphill side of the den, wet the musette bag with a quick spray of gas, tossed it over his shoulder, jammed the free end of the hose into the den mouth and stabbed the can with his knife to vent it. As the gas poured into the den he lit one of his oil and gas soaked bombs and ran around in front, lighting one after another from the one in his hand and tossing them into the den. The musette bag caught fire and he snatched it from his shoulder and tossed it after the bombs. A whoof and a sheet of flame blew out.

About fifty yards away there was a slender, popplelike tree. Ed had thought if he could make that, he would be reasonably secure while the Harn burned. He ran for it as hard as he could, beating at the flames that had spattered on him from the burning gas, but he never made it.

Harn were erupting everywhere. A carrier suddenly came charging out of the brush to his left. While Ed dealt with that one, the Harn played its ace in the hole. The two special units it had been developing to deal with Ed were not quite done yet, but they were done enough to work for the few minutes the Harn needed them. Ed heard a coughing grunt behind him and spun around to see something new crawling out of the flame and smoke at the den entrance.

This one was a roughly carrier shaped creature, but half again as large, built for killing. It had power-

ful fanged jaws and its eight feet were armed with knifelike, disemboweling claws. As it came at Ed in a lumbering rush, another came crawling out after it.

Ed shot four times, as fast as he could work the action. The heavy slugs did the job, but not quite well enough. With its dying lunge the thing got to him and tossed him ten feet like a rag doll. He lit on his bad hand and felt the wrist bones go.

As he struggled to get up, digging his elbow in and using one hand, he saw a stinger darting in at him. He had lost both the bug gun and his rifle when the fighting unit swiped him. He swiveled on his hips and kicked the stinger away. Then he saw the second fighting unit coming. He forgot about the stinger. It still might get to him, but, if it did, it would be too late to matter.

He drew his knife, managed to get to one knee, and crouched there like an old gray rat, stubbly lips drawn back from worn teeth in a grin of pain and rage. This was one he wasn't going to win, he guessed.

Ten feet away, the fighting unit suddenly ran down like a clockwork toy. It toppled over, skidded past him under its own momentum, and lay there kicking spasmodically. Ed glared at it uncomprehendingly. It arched its neck back to almost touch its haunches, stiffened, and was still.

Ed looked around. The stinger was dead too, three feet from his shoulder, and half a dozen more which had been making for him. A cloud of greasy, stinking smoke was rolling

out of the den. The Harn was dead.

Ed put his knife away and lay back. He did not quite pass out, but things got pretty dim.

After a while he got hold of himself and sat up. He was not too surprised to see the man in forest green prodding at the bodies of the fighting units. The stranger looked at the smoke still oozing from the den and nodded approvingly. Then he came over and looked at Ed. He clucked his tongue in concern and bent over, touching Ed's wrist. Ed noticed there was now a cast on it, and it didn't hurt so much. There was also a plastic binding around his ribs and shoulder, where the claws of the first fighter had raked as it tossed him. That was a mighty neat trick, because the rags of his shirt were still buttoned around him, and he was pretty sure it had not been off at any time.

The stranger smiled at Ed, patted him on the shoulder, and disappeared. He seemed to be a busy sort of fellow, Ed thought, with not much time for visiting.

Ed felt quite a bit better now, enough better to gather up what was left of his gear and start home. He was glad to find old Tom waiting for him there. The cat had taken to the woods when the attack on the gate first started, he didn't like shooting, and Ed had worried that the Harn might have got him.

Ed slept till noon the next day, got up and cooked a dozen flapjacks

and a pound of bacon. After breakfast, he sat around for an hour or so drinking coffee. Then he spent the rest of the afternoon puttering around the cabin.

He packed away the snakeproof pants, disassembled the flame-thrower, picked up the traps by the hole.

Old Tom seemed to have pretty well cleaned up the mice under the lean-to. Ed took his shovel and filled in the hole he had dug for the cat to get at them.

He went to bed early. Tomorrow he would take a long hike around the new world, scout out the fur and game, plan his trap-line and pick cabin sites.

The next morning, though, the hole into the other world was gone.

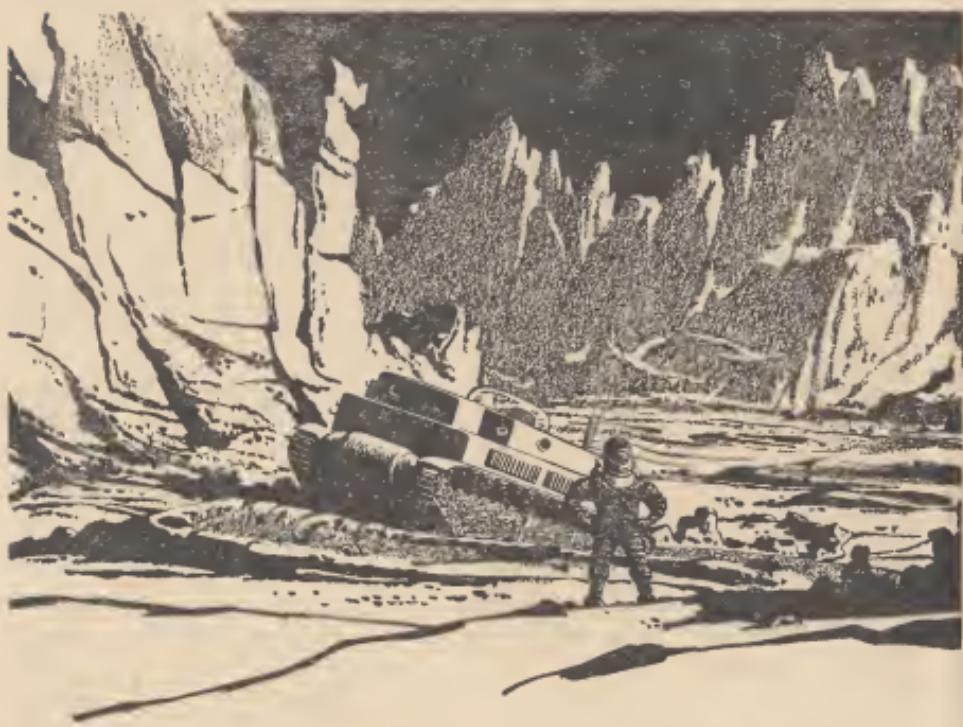
The posts which had marked it were sheared neatly in half. The remains of the door still hung there, battered and sagging; but it swung open on nothing but Alaska, when Ed stepped through he found himself standing beside the old leaning birch.

He tried it several times before he convinced himself.

He walked slowly back toward the cabin, feeling old and uncertain, not quite knowing what to do with himself. Old Tom was over by the lean-to, sniffing and pawing tentatively at the fresh earth where Ed had filled in the hole. As Ed came up, he came over to rub against Ed's leg.

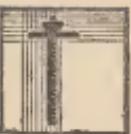
They went into the cabin and Ed started fixing breakfast.

THE END



**ALL DAY...**

**BY ROGER KUYKENDALL**



HE meteor, a pebble, a little larger than a match head, traveled through space and time since it came into being. The light from the star that died when the meteor was created fell on Earth before the first lungfish ventured from the sea.

In its last instant, the meteor fell on the Moon. It was impeded by Evans' tractor.

It drilled a small, neat hole through the casing of the steam turbine, and volitized upon striking the blades. Portions of the turbine also volitized; idling at eight thousand RPM, it became unstable. The shaft tried to tie itself into a knot, and the blades, damaged and undamaged were spit through the casing. The turbine again reached a stable state, that is, stopped. Permanently stopped.

It was two days to sunrise, where Evans stood.

It was just before sunset on a spring evening in September in Sydney. The shadow line between day and night could be seen from the Moon to be drifting across Australia.

Evans, who had no watch, thought



## ... SEPTEMBER

*Some men just haven't got good sense. They just can't seem to learn the most fundamental things. Like when there's no use trying — when it's time to give up because it's hopeless. . . .*

Illustrated by van Dongen

of the time as a quarter after Australia.

Evans was a prospector, and like all prospectors, a sort of jackknife geologist, selenologist, rather. His tractor and equipment cost two hundred and fifty thousand dollars. Fifty thousand was paid for. The rest was promissory notes and grubstake shares. When he was broke, which was usually, he used his tractor to haul uranium ore and metallic sodium from the mines at Potter's dike to Williamson Town, where the rockets landed.

When he was flush, he would prospect for a couple of weeks. Once he followed a stampede to Yellow Crater, where he thought for a while that he had a fortune in chromium. The chromite petered out in a month and a half, and he was lucky to break even.

Evans was about three hundred miles east of Williamson Town, the site of the first landing on the Moon.

Evans was due back at Williamson Town at about sunset, that is, in about sixteen days. When he saw the wrecked turbine, he knew that he wouldn't make it. By careful rationing, he could probably stretch his food out to more than a month. His drinking water—kept separate from the water in the reactor—might conceivably last just as long. But his oxygen was too carefully measured; there was a four-day reserve. By diligent conservation, he might make it last an extra day. Four days reserve—plus one is five—plus sixteen days normal

supply equals twenty-one days to live.

In seventeen days he might be missed, but in seventeen days it would be dark again, and the search for him, if it ever began, could not begin for thirteen more days. At the earliest it would be eight days too late.

"Well, man, 'tis a fine spot you're in now," he told himself.

"Let's find out how bad it is indeed," he answered. He reached for the light switch and tried to turn it on. The switch was already in the "on" position.

"Batteries must be dead," he told himself.

"What batteries?" he asked. "There're no batteries in here, the power comes from the generator."

"Why isn't the generator working, man?" he asked.

He thought this one out carefully. The generator was not turned by the main turbine, but by a small reciprocating engine. The steam, however, came from the same boiler. And the boiler, of course, had emptied itself through the hole in the turbine. And the condenser, of course—

"The condenser!" he shouted.

He fumbled for a while, until he found a small flashlight. By the light of this, he reinspected the steam system, and found about three gallons of water frozen in the condenser. The condenser, like all condensers, was a device to convert steam into water, so that it could be reused in the boiler. This one had a tank and coils of tubing in the center of a curved reflector

that was positioned to radiate the heat of the steam into the cold darkness of space. When the meteor pierced the turbine, the water in the condenser began to boil. This boiling lowered the temperature, and the condenser demonstrated its efficiency by quickly freezing the water in the tank.

Evans sealed the turbine from the rest of the steam system by closing the shut-off valves. If there was any water in the boiler, it would operate the engine that drove the generator. The water would condense in the condenser, and with a little luck, melt the ice in there. Then, if the pump wasn't blocked by ice, it would return the water to the boiler.

But there was no water in the boiler. Carefully he poured a cup of his drinking water into a pipe that led to the boiler, and resealed the pipe. He pulled on a knob marked "Nuclear Start/Safety Bypass." The water that he had poured into the boiler quickly turned into steam, and the steam turned the generator briefly.

Evans watched the lights flicker and go out, and he guessed what the trouble was.

"The water, man," he said, "there is not enough to melt the ice in the condenser."

He opened the pipe again and poured nearly a half-gallon of water into the boiler. It was three days' supply of water, if it had been carefully used. It was one day's supply if used wastefully. It was ostentatious luxury for a man with a month's sup-

ply of water and twenty-one days to live.

The generator started again, and the lights came on. They flickered as the boiler pressure began to fail, but the steam had melted some of the ice in the condenser, and the water pump began to function.

"Well, man," he breathed, "there's a light to die by."

The sun rose on Williamson Town at about the same time it rose on Evans. It was an incredibly brilliant disk in a black sky. The stars next to the sun shone as brightly as though there were no sun. They might have appeared to waver slightly, if they were behind outflung corona flares. If they did, no one noticed. No one looked toward the sun without dark filters.

When Director McIlroy came into his office, he found it lighted by the rising sun. The light was a hot, brilliant white that seemed to pierce the darkest shadows of the room. He moved to the round window, screening his eyes from the light, and adjusted the polaroid shade to maximum density. The sun became an angry red brown, and the room was dark again. McIlroy decreased the density again until the room was comfortably lighted. The room felt stuffy, so he decided to leave the door to the inner office open.

He felt a little guilty about this, because he had ordered that all doors in the survey building should remain closed except when someone was passing through them. This was to

allow the air-conditioning system to function properly, and to prevent air loss in case of the highly improbable meteor damage. McIlroy thought that on the whole, he was disobeying his own orders no more flagrantly than anyone else in the survey.

McIlroy had no illusions about his ability to lead men. Or rather, he did have one illusion; he thought that he was completely unfit as a leader. It was true that his strictest orders were disobeyed with cheerful contempt, but it was also true his mildest requests were complied with eagerly and smoothly.

Everyone in the survey except McIlroy realized this, and even he accepted this without thinking about it. He had fallen into the habit of suggesting mildly anything that he wanted done, and writing orders he didn't particularly care to have obeyed.

For example, because of an order of his stating that there would be no alcoholic beverages within the survey building, the entire survey was assured of a constant supply of homemade, but passably good liquor. Even McIlroy enjoyed the surreptitious drinking.

"Good morning, Mr. McIlroy," said Mrs. Garth, his secretary. Morning to Mrs. Garth was simply the first four hours after waking.

"Good morning indeed," answered McIlroy. Morning to him had no meaning at all, but he thought in the strictest sense that it would be morning on the Moon for another week.

"Has the power crew set up the

solar furnace?" he asked. The solar furnace was a rough parabola of mirrors used to focus the sun's heat on anything that it was desirable to heat. It was used mostly, from sun-up to sun-down, to supplement the nuclear power plant.

"They went out about an hour ago," she answered, "I suppose that's what they were going to do."

"Very good, what's first on the schedule?"

"A Mr. Phelps to see you," she said.

"How do you do, Mr. Phelps," McIlroy greeted him.

"Good afternoon," Mr. Phelps replied. "I'm here representing the Merchants' Bank Association."

"Fine," McIlroy said, "I suppose you're here to set up a bank."

"That's right, I just got in from Muroc last night, and I've been going over the assets of the Survey Credit Association all morning."

"I'll certainly be glad to get them off my hands," McIlroy said. "I hope they're in good order."

"There doesn't seem to be any profit," Mr. Phelps said.

"That's par for a nonprofit organization," said McIlroy. "But we're amateurs, and we're turning this operation over to professionals. I'm sure it will be to everyone's satisfaction."

"I know this seems like a silly question. What day is this?"

"Well," said McIlroy, "that's not so silly. I don't know either."

"Mrs. Garth," he called, "what day is this?"

"Why, September, I think," she answered.

"I mean what *day*."

"I don't know, I'll call the observatory."

There was a pause.

"They say what day where?" she asked.

"Greenwich, I guess, our official time is supposed to be Greenwich Mean Time."

There was another pause.

"They say it's September fourth, one thirty a.m."

"Well, there you are," laughed McIlroy, "it isn't that time doesn't mean anything here, it just doesn't mean the same thing."

Mr. Phelps joined the laughter. "Bankers' hours don't mean much, at any rate," he said.

The power crew was having trouble with the solar furnace. Three of the nine banks of mirrors would not respond to the electric controls, and one bank moved so jerkily that it could not be focused, and it threatened to tear several of the mirrors loose.

"What happened here?" Spotty Cade, one of the electrical technicians asked his foreman, Cowalczk, over the intercommunications radio. "I've got about a hundred pinholes in the cables out here. It's no wonder they don't work."

"Meteor shower," Cowalczk answered, "and that's not half of it. Walker says he's got a half dozen mirrors cracked or pitted, and Hoffman on bank three wants you to re-

place a servo motor. He says the bearing was hit."

"When did it happen?" Cade wanted to know.

"Must have been last night, at least two or three days ago. All of 'em too small for Radar to pick up, and not enough for Seismo to get a rumble."

"Sounds pretty bad."

"Could have been worse," said Cowalczk.

"How's that?"

"Wasn't anybody out in it."

"Hey, Chuck," another technician, Lehman, broke in, "you could maybe get hurt that way."

"I doubt it," Cowalczk answered, "most of these were pinhead size, and they wouldn't go through a suit."

"It would take a pretty big one to damage a servo bearing," Cade commented.

"That could hurt," Cowalczk admitted, "but there was only one of them."

"You mean only one hit our gear," Lehman said. "How many missed?"

Nobody answered. They could all see the Moon under their feet. Small craters overlapped and touched each other. There was—except in the places that men had obscured them with footprints—not a square foot that didn't contain a crater at least ten inches across, there was not a square inch without its half-inch crater. Nearly all of these had been made millions of years ago, but here and there, the rim of a crater covered part of a footprint, clear evidence that it was a recent one.

After the sun rose, Evans returned to the lava cave that he had been exploring when the meteor hit. Inside, he lifted his filter visor, and found that the light reflected from the small ray that peered into the cave door lighted the cave adequately. He tapped loose some white crystals on the cave wall with his geologist's hammer, and put them into a collector's bag.

"A few mineral specimens would give us something to think about, man. These crystals," he said, "look a little like zeolites, but that can't be, zeolites need water to form, and there's no water on the Moon."

He chipped a number of other crystals loose and put them in bags. One of them he found in a dark crevice had a hexagonal shape that puzzled him.

One at a time, back in the tractor, he took the crystals out of the bags and analyzed them as well as he could without using a flame which would waste oxygen. The ones that looked like zeolites were zeolites, all right, or something very much like it. One of the crystals that he thought was quartz turned out to be calcite, and one of the ones that he was sure could be nothing but calcite was actually potassium nitrate.

"Well, now," he said, "it's probably the largest natural crystal of potassium nitrate that anyone has ever seen. Man, it's a full inch across."

All of these needed water to form, and their existence on the Moon puzzled him for a while. Then he

opened the bag that had contained the unusual hexagonal crystals, and the puzzle resolved itself. There was nothing in the bag but a few drops of water. What he had taken to be a type of rock was ice, frozen in a niche that had never been warmed by the sun.

The sun rose to the meridian slowly. It was a week after sunrise. The stars shone coldly, and wheeled in their slow course with the sun. Only Earth remained in the same spot in the black sky. The shadow line crept around until Earth was nearly dark, and then the rim of light appeared on the opposite side. For a while Earth was a dark disk in a thin halo, and then the light came to be a crescent, and the line of dawn began to move around Earth. The continents drifted across the dark disk and into the crescent. The people on Earth saw the full moon set about the same time that the sun rose.

Nickel Jones was the captain of a supply rocket. He made trips from and to the Moon about once a month, carrying supplies in and metal and ores out. At this time he was visiting with his old friend McIlroy.

"I swear, Mac," said Jones, "another season like this, and I'm going back to mining."

"I thought you were doing pretty well," said McIlroy, as he poured two drinks from a bottle of Scotch that Jones had brought him.

"Oh, the money I like, but I will say that I'd have more if I didn't



have to fight the union and the Lunar Trade Commission."

McIlroy had heard all of this before. "How's that?" he asked politely.

"You may think it's myself running the ship," Jones started on his tirade, "but it's not. The union it is that says who I can hire. The union it is that says how much I must pay, and how large a crew I need. And then the Commission . . ." The word seemed to give Jones an unpleasant taste in his mouth, which he hurriedly rinsed with a sip of Scotch.

"The Commission," he continued, making the word sound like an obscenity, "it is that tells me how much I can charge for freight."

McIlroy noticed that his friend's glass was empty, and he quietly filled it again.

"And then," continued Jones, "if I buy a cargo up here, the Commission it is that says what I'll sell it for. If I had my way, I'd charge only fifty cents a pound for freight instead of the dollar forty that the Commission insists on. That's from here to Earth, of course. There's no profit I could

make by cutting rates the other way."

"Why not?" asked McIlroy. He knew the answer, but he liked to listen to the slightly Welsh voice of Jones.

"Near cost it is now at a dollar forty. But what sense is there in charging the same rate to go either way when it takes about a seventh of the fuel to get from here to Earth as it does to get from there to here?"

"What good would it do to charge fifty cents a pound?" asked McIlroy.

"The nickel, man, the tons of nickel worth a dollar and a half on Earth, and not worth mining here; the low-grade ores of uranium and vanadium, they need these things on Earth, but they can't get them as long as it isn't worth the carrying of them. And then, of course, there's the water we haven't got. We could afford to bring more water for more people, and set up more distilling plants if we had the money from the nickel."

"Even though I say it who shouldn't, two-eighty a quart is too much to pay for water."

Both men fell silent for a while. Then Jones spoke again:

"Have you seen our friend Evans lately? The price of chromium has gone up, and I think he could ship some of his ore from Yellow Crater at a profit."

"He's out prospecting again. I don't expect to see him until sundown."

"I'll likely see him then. I won't be loaded for another week and a half. Can't you get in touch with him by radio?"

"He isn't carrying one. Most of the prospectors don't. They claim that a radio that won't carry beyond the horizon isn't any good, and one that will bounce messages from Earth takes up too much room."

"Well, if I don't see him, you let him know about the chromium."

"Anything to help another Welshman, is that the idea?"

"Well, protection it is that a poor Welshman needs from all the English and Scots. Speaking of which—"

"Oh, of course," McIlroy grinned as he refilled the glasses.

*"Slainte, McIlroy, bach."* [Health, McIlroy, man.]

*"Slainte mhor, bach."* [Great Health, man.]

The sun was halfway to the horizon, and Earth was a crescent in the sky when Evans had quarried all the ice that was available in the cave. The thought grew on him as he worked that this couldn't be the only such cave in the area. There must be several more bubbles in the lava flow.

Part of his reasoning proved correct. That is, he found that by chipping, he could locate small bubbles up to an inch in diameter, each one with its droplet of water. The average was about one per cent of the volume of each bubble filled with ice.

A quarter of a mile from the tractor, Evans found a promising looking mound of lava. It was rounded on top, and it could easily be the dome of a bubble. Suddenly, Evans noticed that the gauge on the oxygen tank of his suit was reading dangerously near

empty. He turned back to his tractor, moving as slowly as he felt safe in doing. Running would use up oxygen too fast. He was halfway there when the pressure warning light went on, and the signal sounded inside his helmet. He turned on his ten-minute reserve supply, and made it to the tractor with about five minutes left. The air purifying apparatus in the suit was not as efficient as the one in the tractor; it wasted oxygen. By using the suit so much, Evans had already shortened his life by several days. He resolved not to leave the tractor again, and reluctantly abandoned his plan to search for a large bubble.

The sun stood at half its diameter above the horizon. The shadows of the mountains stretched out to touch the shadows of the other mountains. The dawning line of light covered half of Earth, and Earth turned beneath it.

Cowalczk itched under his suit, and the sweat on his face pricked maddeningly because he couldn't reach it through his helmet. He pushed his forehead against the faceplate of his helmet and rubbed off some of the sweat. It didn't help much, and it left a blurred spot in his vision. That annoyed him.

"Is everyone clear of the outlet?" he asked.

"All clear," he heard Cade report through the intercom.

"How come we have to blow the boilers now?" asked Lehman.

"Because I say so," Cowalczk

shouted, surprised at his outburst and ashamed of it. "Boiler scale," he continued, much calmer. "We've got to clean out the boilers once a year to make sure the tubes in the reactor don't clog up." He squinted through his dark visor at the reactor building, a gray concrete structure a quarter of a mile distant. "It would be pretty bad if they clogged up some night."

"Pressure's ten and a half pounds," said Cade.

"Right, let her go," said Cowalczk.

Cade threw a switch. In the reactor building, a relay closed. A motor started turning, and the worm gear on the motor opened a valve on the boiler. A stream of muddy water gushed into a closed vat. When the vat was about half full, the water began to run nearly clear. An electric eye noted that fact and a light in front of Cade turned on. Cade threw the switch back the other way, and the relay in the reactor building opened. The motor turned and the gears started to close the valve. But a fragment of boiler scale held the valve open.

"Valve's stuck," said Cade.

"Open it and close it again," said Cowalczk. The sweat on his forehead started to run into his eyes. He banged his hand on his faceplate in an unconscious attempt to wipe it off. He cursed silently, and wiped it off on the inside of his helmet again. This time, two drops ran down the inside of his faceplate.

"Still don't work," said Cade.

"Keep trying," Cowalczk ordered. "Lehman, get a Geiger counter and

come with me, we've got to fix this thing."

Lehman and Cowalczk, who were already suited up started across to the reactor building. Cade, who was in the pressurized control room without a suit on, kept working the switch back and forth. There was light that indicated when the valve was open. It was on, and it stayed on, no matter what Cade did.

"The vat pressure's too high," Cade said.

"Let me know when it reaches six pounds," Cowalczk requested. "Because it'll probably blow at seven."

The vat was a light plastic container used only to decant sludge out of the water. It neither needed nor had much strength.

"Six now," said Cade.

Cowalczk and Lehman stopped halfway to the reactor. The vat bulged and ruptured. A stream of mud gushed out and boiled dry on the face of the Moon. Cowalczk and Lehman rushed forward again.

They could see the trickle of water from the discharge pipe. The motor turned the valve back and forth in response to Cade's signals.

"What's going on out there?" demanded McIlroy on the intercom.

"Scale stuck in the valve," Cowalczk answered.

"Are the reactors off?"

"Yes. Vat blew. Shut up! Let me work, Mac!"

"Sorry," McIlroy said, realizing that this was no time for officials. "Let me know when it's fixed."

"Geiger's off scale," Lehman said.

"We're probably O.K. in these suits for an hour," Cowalczk answered. "Is there a manual shutoff?"

"Not that I know of," Lehman answered. "What about it, Cade?"

"I don't think so," Cade said. "I'll get on the blower and rouse out an engineer."

"O.K., but keep working that switch."

"I checked the line as far as it's safe," said Lehman. "No valve."

"O.K.," Cowalczk said. "Listen, Cade, are the injectors still on?"

"Yeah. There's still enough heat in these reactors to do some damage. I'll cut 'em in about fifteen minutes."

"I've found the trouble," Lehman said. "The worm gear's loose on its shaft. It's slipping every time the valve closes. There's not enough power in it to crush the scale."

"Right," Cowalczk said. "Cade, open the valve wide. Lehman, hand me that pipe wrench!"

Cowalczk hit the shaft with the back of the pipe wrench, and it broke at the motor bearing.

Cowalczk and Lehman fitted the pipe wrench to the gear on the valve, and turned it.

"Is the light off?" Cowalczk asked.

"No," Cade answered.

"Water's stopped. Give us some pressure, we'll see if it holds."

"Twenty pounds," Cade answered after a couple of minutes.

"Take her up to . . . no, wait, it's still leaking," Cowalczk said. "Hold it there, we'll open the valve again."

"O.K.," said Cade. "An engineer here says there's no manual cutoff."

"Like Hell," said Lehman.

Cowalczk and Lehman opened the valve again. Water spurted out, and dwindled as they closed the valve.

"What did you do?" asked Cade. "The light went out and came on again."

"Check that circuit and see if it works," Cowalczk instructed.

There was a pause.

"It's O.K.," Cade said.

Cowalczk and Lehman opened and closed the valve again.

"Light is off now," Cade said.

"Good," said Cowalczk, "take the pressure up all the way, and we'll see what happens."

"Eight hundred pounds," Cade said, after a short wait.

"Good enough," Cowalczk said. "Tell that engineer to hold up a while, he can fix this thing as soon as he gets parts. Come on, Lehman, let's get out of here."

"Well, I'm glad that's over," said Cade. "You guys had me worried for a while."

"Think we weren't worried?" Lehman asked. "And it's not over."

"What?" Cade asked. "Oh, you mean the valve servo you two bashed up?"

"No," said Lehman, "I mean the two thousand gallons of water that we lost."

"Two thousand?" Cade asked. "We only had seven hundred gallons reserve. How come we can operate now?"

"We picked up twelve hundred

from the town sewage plant. What with using the solar furnace as a radiator, we can make do."

"Oh, God, I suppose this means water rationing again."

"You're probably right, at least until the next rocket lands in a couple of weeks."

#### PROSPECTOR FEARED LOST ON MOON

IPP Williamson Town, Moon, Sept. 21st. Scientific survey director McIlroy released a statement today that Howard Evans, a prospector is missing and presumed lost. Evans, who was apparently exploring the Moon in search of minerals was due two days ago, but it was presumed that he was merely temporarily delayed.

Evans began his exploration on August 25th, and was known to be carrying several days reserve of oxygen and supplies. Director McIlroy has expressed a hope that Evans will be found before his oxygen runs out.

Search parties have started from Williamson Town, but telescopic search from Palomar and the new satellite observatory are hindered by the fact that Evans is lost on the part of the Moon which is now dark. Little hope is held for radio contact with the missing man as it is believed he was carrying only short-range, intercommunications equipment. Nevertheless, receivers are . . .

Captain Nickel Jones was also ex-

pressing a hope: "Anyway, Mac," he was saying to McIlroy, "a Welshman knows when his luck's run out. And never a word did he say."

"Like as not, you're right," McIlroy replied, "but if I know Evans, he'd never say a word about any forebodings."

"Well, happen I might have a bit of Welsh second sight about me, and it tells me that Evans will be found."

McIlroy chuckled for the first time in several days. "So that's the reason you didn't take off when you were scheduled," he said.

"Well, yes," Jones answered. "I thought that it might happen that a rocket would be needed in the search."

The light from Earth lighted the Moon as the Moon had never lighted Earth. The great blue globe of Earth, the only thing larger than the stars, wheeled silently in the sky. As it turned, the shadow of sunset crept across the face that could be seen from the Moon. From full Earth, as you might say, it moved toward last quarter.

The rising sun shone into Director McIlroy's office. The hot light formed a circle on the wall opposite the window, and the light became more intense as the sun slowly pulled over the horizon. Mrs. Garth walked into the director's office, and saw the director sleeping with his head cradled in his arms on the desk. She walked softly to the window and adjusted the shade to darken the office. She stood looking at McIlroy for a moment, and when he moved slightly in

his sleep, she walked softly out of the office.

A few minutes later she was back with a cup of coffee. She placed it in front of the director, and shook his shoulder gently.

"Wake up, Mr. McIlroy," she said, "you told me to wake you at sunrise, and there it is, and here's Mr. Phelps."

McIlroy woke up slowly. He leaned back in his chair and stretched. His neck was stiff from sleeping in such an awkward position.

"Morning, Mr. Phelps," he said.

"Good morning," Phelps answered, dropping tiredly into a chair.

"Have some coffee, Mr. Phelps," said Mrs. Garth, handing him a cup.

"Any news?" asked McIlroy.

"About Evans?" Phelps shook his head slowly. "Palomar called in a few minutes back. Nothing to report and the sun was rising there. Australia will be in position pretty soon. Several observatories there. Then Cape-town. There are lots of observatories in Europe, but most of them are clouded over. Anyway the satellite observatory will be in position by the time Europe is."

McIlroy was fully awake. He glanced at Phelps and wondered how long it had been since he had slept last. More than that, McIlroy wondered why this banker, who had never met Evans, was losing so much sleep about finding him. It began to dawn on McIlroy that nearly the whole population of Williamson Town was involved, one way or another, in the search.

The director turned to ask Phelps about this fact, but the banker was slumped in his chair, fast asleep with his coffee untouched.

It was three hours later that McIlroy woke Phelps.

"They've found the tractor," McIlroy said.

"Good," Phelps mumbled, and then as comprehension came; "That's fine! That's just fine! Is Evans—?"

"Can't tell yet. They spotted the tractor from the satellite observatory. Captain Jones took off a few minutes ago, and he'll report back as soon as he lands. Hadn't you better get some sleep?"

Evans was carrying a block of ice into the tractor when he saw the rocket coming in for a landing. He dropped the block and stood waiting. When the dust settled from around the tail of the rocket, he started to run forward. The air lock opened, and Evans recognized the vacuum suited figure of Nickel Jones.

"Evans, man!" said Jones' voice in the intercom. "Alive you are!"

"A Welshman takes a lot of killing," Evans answered.

Later, in Evans' tractor, he was telling his story:

"... And I don't know how long I sat there after I found the water." He looked at the Goldburgian device he had made out of wire and tubing. "Finally I built this thing. These caves were made of lava. They must

have been formed by steam some time, because there's a floor of ice in all of 'em.

"The idea didn't come all at once, it took a long time for me to remember that water is made out of oxygen and hydrogen. When I remembered that, of course, I remembered that it can be separated with electricity. So I built this thing.

"It runs an electric current through water, lets the oxygen loose in the room, and pipes the hydrogen outside. It doesn't work automatically, of course, so I run it about an hour a day. My oxygen level gauge shows how long."

"You're a genius, man!" Jones exclaimed.

"No," Evans answered, "a Welshman, nothing more."

"Well, then," said Jones, "are you ready to start back?"

"Back?"

"Well, it was to rescue you that I came."

"I don't need rescuing, man," Evans said.

Jones stared at him blankly.

"You might let me have some food," Evans continued. "I'm getting short of that. And you might have someone send out a mechanic with parts to fix my tractor. Then maybe you'll let me use your radio to file my claim."

"Claim?"

"Sure, man, I've thousands of tons of water here. It's the richest mine on the Moon!"

THE END



# TRANSFUSION

BY CHAD OLIVER

Illustrated by van Dongen

*Ignorance and stupidity are not the same thing. And Ignorance has a very high and special value. Be it noted: No other mammal starts life as ignorant as Man!*



HE machine stopped.

There was no sound at all now, and the green light on the control panel blinked like a mocking eye. With the easy precision born of long routine, Ben Hazard did what had to be done. He did it automatically, without real interest, for there was no longer any hope.

He punched a figure into the recorder: 377.

He computed the year, using the Gottwald-Hazard Correlation, and added that to the record: 254,000 B.C.

He completed the form with the name of the site: Choukoutien.

Then, with a lack of anticipation that eloquently reminded him that this was the three hundred seventy-seventh check instead of the first, Ben Hazard took a long preliminary look through the viewer. He saw nothing that interested him.

Careful as always before leaving the Bucket, he punched in the usual datum: Viewer Scan Negative.

He unlocked the hatch at the top of the Bucket and climbed out of the metallic gray sphere. It was not raining, for a change, and the sun was

warm and golden in a clean blue sky.

Ben Hazard stretched his tired muscles and rested his eyes on the fresh green of the tangled plants that grew along the banks of the lazy stream to his right. The grass in the little meadow looked cool and inviting, and there were birds singing in the trees. He was impressed as always by how little this corner of the world had changed in fifty years. It was very much as it had been a thousand years ago, or two thousand, or three . . .

It was just a small corner of nowhere, lost in the mists of time, waiting for the gray sheets of ice to come again.

It was just a little stream, bubbling along and minding its own business, and a lonely limestone hill scarred with the dark staring eyes of rock shelters and cave entrances.

There was nothing different about it.

It took Man to change things in a hurry, and Man wasn't home.

That was the problem.

Ben took the six wide-angle photographs of the terrain that he always took. There were no animals within

camera range this trip. He clambered through the thick brown brush at the base of the limestone hill and climbed up the rough rocks to the cave entrance. It was still open, and he knew its location by heart.

He well remembered the thrill he had felt the first time he had entered this cave. His heart had hammered in his chest and his throat had been so dry that he couldn't swallow. His mind had been ablaze with memories and hopes and fears, and it had been the most exciting moment of his life.

Now, only the fear remained—and it was a new kind of fear, the fear of what he *wouldn't* find.

His light blazed ahead of him as he picked his way along the winding passage of the cave. He disturbed a cloud of indignant bats, but there was no other sign of life. He reached the central cavern, dark and hushed and hidden under the earth, and flashed his light around carefully.

There was nothing new.

He recognized the familiar bones of wolf, bear, tiger, and camel. He photographed them again, and did manage to find the remains of an ostrich that he had not seen before. He took two pictures of that.

He spent half an hour poking around in the cavern, checking all of the meticulously recorded sites, and then made his way back to the sunlit entrance.

The despair welled up in him, greater than before. Bad news, even when it is expected, is hard to take

when it is confirmed. And there was no longer any real doubt.

Man wasn't home.

Ben Hazard wasn't puzzled any longer. He was scared and worried. He couldn't pass the buck to anyone else this time. He had come back to see for himself, and he had seen.

Imagine a man who built a superb computer, a computer that could finally answer the toughest problems in his field. Suppose the ultimate in computers, and the ultimate in coded tapes; a machine—however hypothetical—that was never wrong. Just for kicks, suppose that the man feeds in an easy one: *What is two plus three?*

If the computer answers *six*, then the man is in trouble. Of course, the machine might be multiplying rather than adding—

But if the computer answers *zero*, or *insufficient data*, what then?

Ben Hazard slowly walked back to the Bucket, climbed inside, and locked the hatch.

He filed his films under the proper code number.

He pushed in the familiar datum: Field Reconnaissance Negative.

He sat down before the control board and got ready.

He was completely alone in the small metallic sphere; he could see every inch of it. He *knew* that he was alone. And yet, as he had before, he had the odd impression that there was someone with him, someone looking over his shoulder . . .

Ben Hazard had never been one to vault into the saddle and gallop

off in all directions. He was a trained scientist, schooled to patience. He did not understand the soundless voice that kept whispering in his mind: *Hurry, hurry, hurry*—

"Boy," he said aloud, "you've been in solitary too long."

He pulled himself together and reached for the controls. He was determined to run out the string—twenty-three checks to go now—but he already knew the answer.

Man wasn't home.

When Ben Hazard returned to his original year of departure, which was 1982, he stepped out of the Bucket at New Mexico Station—for the machine, of necessity, moved in space as well as time. As a matter of fact, the spatial movement of the Bucket was one of the things that made it tough to do an intensive periodic survey of any single spot on the Earth's surface; it was hard to hold the Bucket on target.

According to his own reckoning, and in terms of physiological time, he had spent some forty days in his check of Choukoutien in the Middle Pleistocene. Viewed from the other end at New Mexico Station, he had been gone only five days.

The first man he saw was the big M.P. corporal.

"I'll need your prints and papers, sir," the M.P. said.

"Dammit, Ames." Ben handed over the papers and stuck his thumbs in the scanner. "Don't you know me by now?"

"Orders, sir."

Ben managed a tired smile. After all, the military implications of time travel were staggering, and care was essential. If you could move back in time only a few years and see what the other side had done, then you could counter their plans in the present. Since the old tribal squabbles were still going full blast, Gottwald had had to pull a million strings in order to get his hands on some of the available Buckets.

"Sorry, Ames. You look pretty good to me after a month or so of old camel bones."

"Nice to have you back, Dr. Hazard," the M.P. said neutrally.

After he had been duly identified as Benjamin Wright Hazard, Professor of Anthropology at Harvard and Senior Scientist on the Joint Smithsonian-Harvard-Berkeley Temporal Research Project, he was allowed to proceed. Ben crossed the crowded floor of the room they called Grand Central Station and paused a moment to see how the chimps were getting along.

There were two of them, Charles Darwin and Cleopatra, in separate cages. The apes had been the first time travelers, and were still used occasionally in testing new Buckets. Cleopatra scratched herself and hooted what might have been a greeting, but Charles Darwin was busy with a problem. He was trying to fit two sticks together so he could knock down a banana that was hanging just out of reach. He was obviously irritated, but he was no quitter.

"I know just how you feel, Charles," Ben said.

Charles Darwin pursed his mobile lips and redoubled his efforts.

*What they won't do for one lousy banana.*

Ben looked around for Nate York, who was working with the chimps, and spotted him talking to a technician and keeping track of his experiment out of the corner of his eye. Ben waved and went on to the elevator.

He rode up to the fourth floor and walked into Ed Stone's office. Ed was seated at his desk and he looked very industrious as he studied the dry white skull in front of him. The skull, however, was just a paper weight; Ed had used it for years.

Ed stood up, grinned, and stuck out his hand. "Sure glad you're back, Ben. Any luck?"

Ben shook hands and straddled a chair. He pulled out his pipe, filled it from a battered red can, and lit it gratefully. It felt good to be back with Ed. A man doesn't find too many other men he can really talk to in his lifetime, and Ed was definitely Number One. Since they were old friends, they spoke a private language.

"He was out to lunch," Ben said.

"For twenty thousand years?"

"*Sinanthropus* has always been famous for his dietary eccentricities."

Ed nodded to show that he caught the rather specialized joke—*Sinanthropus* had been a cannibal—and

then leaned forward, his elbows on the desk. "You satisfied now?"

"Absolutely."

"No margin for error?" Ed insisted.

"None. I didn't really doubt Thompson's report, but I wanted to make certain. *Sinanthropus* isn't there. Period."

"That tears it then. We're up the creek for sure."

"Without a paddle."

"Without even a canoe." Ben puffed on his pipe. "Blast it, Ed, where *are* they?"

"You tell me. Since you left, Gottwald and I have gotten exactly nowhere. The way it looks right now, man hasn't got any ancestors—and that's crazy."

It's more than crazy, Ben thought. It's frightening. When you stop to think about it, man is a lot more than just an individual. Through his children, he extends on into the future. Through his ancestors, he stretches back far into the past. It is immortality of a sort. And when you chop off one end—

"I'm scared," he said. "I don't mind admitting it. There's an answer somewhere, and we've got to find it."

"I know how you feel, Ben. If this thing means what it seems to mean, then all science is just so much hot air. There's no cause and effect, no evidence, no reason. Man isn't what he thinks he is at all. We're just frightened animals sitting in a cave gaping at the darkness outside. Don't think I don't feel

it, too. But what are we going to do?"

Ben stood up and knocked out his pipe. "Right now, I'm going home and hit the sack; I'm dead. Then the three of us—you and I and Gottwald—are going to sit down and hash this thing out. Then we'll at least know where we are."

"Will we?"

"We'd better."

He walked to the elevator and rode down to the ground floor of New Mexico Station. He had to identify himself twice more before he finally emerged into the glare of the desert sunlight. The situation struck him as the height of irony: here they were worried about spies and fancy feuds, when all the time—

What?

He climbed into his car and started for home. The summer day was bright and hot, but he felt as though he were driving down an endless tunnel of darkness, an infinite black cave to nowhere.

The voice whispered in his brain:  
*Hurry, hurry—*

His home was a lonely one, lonely with a special kind of emptiness. All his homes seemed deserted now that Anne was gone, but he liked this one better than most.

It was built of adobe with heavy exposed roof beams, cool in the summer and warm in winter. The Mexican tile floor was artfully broken up by lovely Navaho rugs—the rare Two Gray Hills kind in subdued and intricate grays and blacks and

whites. He had brought many of his books with him from Boston and their familiar jackets lined the walls.

Ben was used to loneliness, but memories died hard. The plane crash that had taken Anne from him had left an emptiness in his heart: Sometimes, late in the evening, he thought he heard her footsteps in the kitchen. Often, when the telephone rang, he waited for her to answer it.

Twenty years of marriage are hard to forget.

Ben took a hot shower, shaved, and cooked himself a steak from the freezer. Then he poured a healthy jolt of Scotch over two ice cubes and sat down in the big armchair, propping his feet on the padded bench. He was still tired, but he felt more like a human being.

His eyes wandered to his books. There was usually something relaxing about old books and long-read titles, something reassuring. It had always been that way for him, but not any longer.

The titles jeered at him: *Mankind So Far, Up from the Ape, History of the Primates, Fossil Men, The Story of Man, Human Origins, The Fossil Evidence for Human Evolution, History of the Vertebrates...*

Little man, what now?

"We seem to have made a slight mistake, as the chemist remarked when his lab blew up," Ben said aloud.

Yes, but where could they have gone wrong?

Take *Sinanthropus*, for example.

The remains of forty different *Sinanthropus* individuals had been excavated from the site of Choukoutien in China by Black and Weidenreich, two excellent men. There was plenty of material and it had been thoroughly studied. Scientists knew when *Sinanthropus* had lived in the Middle Pleistocene, where he lived, and how he lived. They even had the hearths where he cooked his food, the tools he used, the animals he killed. They knew what he looked like. They knew how he was related to his cousin, *Pithecanthropus Erectus*, and to modern men. There was a cast of his skull in every anthropology museum in the world, a picture of him in every textbook.

There was nothing mysterious about Sam *Sinanthropus*. He was one of the regulars.

Ben and Gottwald had nailed the date to the wall at 250,000 B.C. After Thompson's incredible report, Ben himself had gone back in time to search for *Sinanthropus*. Just to make certain, he had checked through twenty thousand years.

Nobody home.

*Sinanthropus* wasn't there.

That was bad enough.

But *all* the early human and pre-human fossils were missing.

There *were* no men back in the Pleistocene.

No *Australopithecus*, no *Pithecanthropus*, no Neanderthal, no nothing.

It was impossible.

At first, Ben had figured that there

must be an error somewhere in the dating of the fossils. After all, a geologist's casual "Middle Pleistocene" isn't much of a target, and radiocarbon dating was no good that far back. But the Gottwald-Hazard Correlation had removed that possibility.

The fossil men simply were not there.

They had disappeared. Or they had never been there. Or—

Ben got up and poured himself another drink. He needed it.

When the Winfield-Homans equations had cracked the time barrier and Ben had been invited by old Franz Gottwald to take part in the Temporal Research Project, Ben had leaped at the opportunity. It was a scientist's dream come true.

He could actually go back and *see* the long-vanished ancestors of the human species. He could listen to them talk, watch their kids, see them make their tools, hear their songs. No more sweating with a few broken bones. No more puzzling over flint artifacts. No more digging in ancient firepits.

He had felt like a man about to sit down to a Gargantuan feast.

Unhappily, it had been the cook's night out. There was nothing to eat.

Every scientist knows in his heart that his best theories are only educated guesses. There is a special Hall of Fame reserved for thundering blunders: the flat Earth, the medical humors, the unicorn.

Yes, and don't forget Piltdown Man.

Every scientist expects to revise his theories in the light of new knowledge. That's what science means. But he doesn't expect to find out that it's *all* wrong. He doesn't expect his Manhattan Project to show conclusively that uranium doesn't actually exist.

Ben finished his drink. He leaned back and closed his eyes. There had to be an answer somewhere—or somewhen. *Had* to be. A world of total ignorance is a world of terror; anything can happen.

Where was Man?

And why?

He went to bed and dreamed of darkness and ancient fears. He dreamed that he lived in a strange and alien world, a world of fire and blackness and living shadows—

When he woke up the next morning, he wasn't at all sure that he had been dreaming.

Among them, an impartial observer would have agreed, the three men in the conference room at New Mexico Station knew just about all there was to know concerning early forms of man. At the moment, in Ben's opinion, they might as well have been the supreme experts on the Ptolemaic theory of epicycles.

They were three very different men.

Ben Hazard was tall and lean and craggy-featured, as though the winds of life had weathered him down to the tough, naked rock that would yield no further. His blue eyes had an ageless quality about them, the

agelessness of deep seas and high mountains, but they retained an alert and restless curiosity that had changed little from the eyes of an Ohio farm boy who had long ago wondered at the magic of the rain and filled his father's old cigar boxes with strange stones that carried the imprints of plants and shells from the dawn of time.

Ed Stone looked like part of what he was: a Texan, burned by the sun, his narrow gray eyes quiet and steady. He was not a big man, and his soft speech and deliberate movements gave him a deceptive air of lassitude. Ed was an easy man to underestimate; he wasted no time on frills or pretense, but there was a razor-sharp brain in his skull. He was younger than Ben, not yet forty, but Ben trusted his judgment more than he did his own.

Franz Gottwald, old only in years, was more than a man now; he was an institution. They called him the dean of American anthropology, but not to his white-bearded face; Franz had small respect for deans. They stood when he walked into meetings, and Franz took it as his due—he had earned it, but it concerned him no more than the make of the car he drove. Ben and Ed had both studied under Franz, and they still deferred to him, but the relationship was a warm one. Franz had been born in Germany—he never spoke about his life before he had come to the United States at the age of thirty—and his voice was still flavored by a slight accent that genera-

tions of graduate students had tried to mimic without much success. He was the Grand Old Man.

"Well?" asked Dr. Gottwald when Ben had finished his report. "What is the next step, gentlemen?"

Ed Stone tapped on the polished table with a yellow pencil that showed distinct traces of gnawing. "We've got to accept the facts and go on from there. We know what the situation is, and we think that we haven't made any whopping mistakes. In a nutshell, man has vanished from his own past. What we need is an explanation, and the way to get it is to find some relatively sane hypothesis that we can *test*, not just kick around. Agreed?"

"Very scientific, Edward," Gottwald said, stroking his neat white beard.

"O.K.," Ben said. "Let's work from what we know. Those skeletons *were* in place in Africa, in China, in Europe, in Java—they had to be there because that's where they were originally dug up. The bones are real, I've held them in my hands, and they're still in place in the museums. No amount of twaddle about alternate time-tracks and congruent universes is going to change that. Furthermore, unless Franz and I are the prize dopes of all time, the dating of those fossils is accurate in terms of geology and the associated flora and fauna and whatnot. The Buckets work; there's no question about that. So why can't we find the men who left the skeletons, or even

the bones themselves in their original sites?"

"That's a question with only one possible answer," Ed said.

"Check. Paradoxes aside—and there are no paradoxes if you have enough accurate information—the facts have to speak for themselves. *We don't find them because they are not there.* Next question: where the devil are they?"

Ed leaned forward, chewing on his pencil. "If we forget about their geological context, none of those fossils are more than a few hundred years old. I mean, that's when they were found. Even Neanderthal only goes back to around 1856 or thereabouts. Science itself is an amazingly recent phenomenon. So—"

"You mean Piltdown?" Gottwald suggested, smiling.

"Maybe."

Ben filled his pipe and lit it. "I've thought about that, too. I guess all of us have. If one fossil man was a fake, why not all of them? But it won't hold water, and you know it. For one thing, it would have required a world-wide conspiracy, which is nonsense. For another—sheer manpower aside—the knowledge that would have been required to fake all those fossils simply did not exist at the time they were discovered. Piltdown wouldn't have lasted five minutes with fluorine dating and decent X-rays, and no one can sell me on the idea that men like Weidenreich and Von Koenigswald and Dart were fakers. Anyhow, that idea

would leave us with a problem tougher than the one we're trying to solve—where did man come from if he had no past, no ancestors? I vote we exorcise that particular ghost."

"Keep going," Gottwald said.

Ed took it up. "Facts, Ben. Leave the theories for later. If neither the bones nor the men were present back in the Pleistocene where they belong, but the bones were present to be discovered later, then they *have* to appear somewhere in between. Our problem right now is *when*."

Ben took his pipe out of his mouth and gestured with it, excited now. "We can handle that one. Dam-

mit, *all* of our data can't be haywire. Look: for most of his presumed existence, close to a million years, man was a rare animal—all the bones of all the fossil men ever discovered wouldn't fill up this room we're sitting in; all the crucial ones would fit in a broom closet. O.K.? But by Neolithic times, with agricultural villages, there were men everywhere, even here in the New World. That record is clear. So those fossils *had* to be in place by around eight thousand years ago. All we have to do—"

"Is to work back the other way," Ed finished, standing up. "By God, that's it! We can send teams back



through history, checking at short intervals, until we *see* how it started. As long as the bones are where they should be, fine. When they disappear—and they have to disappear, because we know they're not there earlier—we'll reverse our field and check it hour by hour if necessary. Then we'll know what happened. After that, we can kick the theories around until we're green in the face."

"It'll work," Ben said, feeling like a man walking out of a heavy fog. "It won't be easy, but it can be done. Only—"

"Only what?" Gottwald asked.

"Only I wonder what we'll find. I'm a little afraid of what we're going to see."

"One thing sure," Ed said.

"Yes?"

"This old world of ours will never be the same. Too bad—I kind of liked it the way it was."

Gottwald nodded, stroking his beard.

For months, Ben Hazard virtually lived within the whitewashed walls of New Mexico Station. He felt oddly like a man fighting a rattlesnake with his fists at some busy intersection, while all about him people hurried by without a glance, intent on their own affairs.

What went on in New Mexico Station was, of course, classified information. In Ben's opinion, this meant that there had been a ludicrous reversion to the techniques of magic. Facts were stamped with the sacred

symbol of *CLASSIFIED*, thereby presumably robbing them of their power. Nevertheless, the world outside didn't know what the score was, and probably didn't care, while inside the Station—

History flickered by, a wonderful and terrible film.

Man was its hero and its villain—but for how long?

The teams went back, careful to do nothing and to touch nothing. The teams left Grand Central and pushed back, probing, searching . . .

Back past the Roman legions and the temples of Athens, back beyond the pyramids of Egypt and the marvels of Ur, back through the sun-baked villages of the first farmers, back into the dark shadows of pre-history—

And the teams found nothing.

At every site they could reach without revealing their presence, the bones of the early men were right where they should have been, waiting patiently to be unearthed.

Back past 8,000 B.C.

Back past 10,000.

Back past 15,000—

And then, when the teams reached 25,000 B.C., it happened. Quite suddenly, in regions as far removed from one another as France and Java, the bones disappeared.

And not just the bones.

Man himself was gone.

The world, in some ways, was as it had been—or was to be. The gray waves still tossed on the mighty seas, the forests were cool and green under clean blue skies, the sparkling

sheets of snow and ice still gleamed beneath a golden sun.

The Earth was the same, but it was a strangely empty world without men. A desolate and somehow fearful world, hushed by long silences and stroked coldly by the restless winds . . .

"That's it," Ben said. "Whatever it was, we know when it happened —somewhere between 23,000 and 25,000 at the end of the Upper Paleolithic. I'm going back there."

"*We're* going back there," Ed corrected him. "If I sit this one out I'll be ready for the giggle factory."

Ben smiled, not trying to hide his relief. "I think I could use some company this trip."

"It's a funny feeling, Ben."

"Yes." Ben Hazard glanced toward the waiting Buckets. "I've seen a lot of things in my life, but I never thought I'd see the Beginning."

The machine stopped and the green light winked.

Ed checked the viewer while Ben punched data into the recorder.

"Nothing yet," Ed said. "It's raining."

"Swell." Ben unlocked the hatch and the two men climbed out. The sky above them was cold and gray. An icy rain was pouring down from heavy, low-hanging clouds. There was no thunder. Apart from the steady hiss of the rain, France in the year 24,571 B.C. was as silent as a tomb. "Let's get this thing covered up."

They hauled out the plastic cover,

camouflaged to blend with the landscape, and draped it over the metallic gray sphere. They had been checking for eighteen days without results, but they were taking no chances.

They crossed the narrow valley through sheets of rain, their boots sinking into the soaked ground with every step. They climbed up the rocks to the gaping black hole of the cave entrance and worked their way in under the rock ledge, out of the rain. They switched on their lights, got down on their hands and knees, and went over every inch of the dry area just back of the rock overhang.

Nothing.

The gray rain pelted the hillside and became a torrent of water that splashed out over the cave entrance in a hissing silver waterfall. It was a little warmer in the cave, but dark and singularly uninviting.

"Here we go again," Ed muttered. "I know this blasted cave better than my own backyard."

"I'd like to see that backyard of yours about now. We could smoke up some chickens in the barbecue pit and sample some of Betty's tequila sours."

"Right now I'd just settle for the tequila. If we can't figure this thing out any other way we might just as well start looking in the old bottle."

"Heigh-ho," Ben sighed, staring at the waiting cave. "Enter one dwarf and one gnome, while thousands cheer."

"I don't hear a thing."

Ed took the lead and they picked and crawled their way back through

the narrow passages of the cave, their lights throwing grotesque black shadows that danced eerily on the spires and pillars of ancient, dripping stone. Ben sensed the weight of the great rocks above him and his chest felt constricted. It was hard to breathe, hard to keep going.

"Whatever I am in my next incarnation," he said, "I hope it isn't a mole."

"You won't even make the mammals," Ed assured him.

They came out into a long, twisted vault. It was deep in the cave, far from the hidden skies and insulated from the pounding of the rain. They flashed their lights over the walls, across the dry gray ceiling, into the ageless silence.

Nothing.

No cave paintings.

It was as though man had never been, and never was to be.

"I'm beginning to wonder whether *I'm* real," Ed said.

"Wait a minute." Ben turned back toward the cave entrance, his body rigid. "Did you hear something?"

Ed held his breath and listened. "Yeah. There it is again."

It was faint and remote as it came to them in the subterranean vault, but there was no mistaking it.

A sound of thunder, powerful beyond belief.

Steady, now.

Coming closer.

And there had been no thunder in that cold, hissing rain . . .

"Come on." Ben ran across the cavern and got down on his hands

and knees to crawl back through the twisting passage that led to the world outside. "There's something out there."

"What is it?"

Ben didn't stop. He clawed at the rocks until his hands were bloody. "I think the lunch hour's over," he panted. "I think Man's coming home."

Like two frightened savages, they crouched in the cave entrance and looked out across the rain-swept valley. The solid stone vibrated under their feet and the cold gray sky was shattered by blasting roars.

One thing was certain: that was no natural thunder.

"We've got to get out of here," Ben yelled. "We've got to hide before—"

"Where? The Bucket?"

"That's the best bet. It's almost invisible in this rain, and we can see through the viewer."

"Right. Run for it!"

They scrambled down among the slick rocks and ran across the wet grass and mud of the valley floor. It was cold and the rain pelted their faces in icy gray sheets. The deafening roar grew even louder, falling down from the leaden sky.

Fumbling in their haste, they jerked up a corner of the plastic cover so that the viewer could operate. Then they squirmed and wriggled under the plastic, dropped through the hatch, and sealed the lock. They dripped all over the time sphere but there was no time to both-

er about it. Even inside the Bucket they could feel the ocean of sound around them.

Ben cut in the recorder. "Start the cameras."

"Done."

"Hang on—"

The shattering roar reached an ear-splitting crescendo. Suddenly, there was something to see.

Light.

Searing white flame stabbing down from the gray skies.

They saw it: Gargantuan, lovely, huge beyond reason.

Before their eyes, like a vast metal fish from an unknown and terrible sea, the spaceship landed in the rain-soaked valley of Paleolithic France.

The long silence came again.

Fists clenched, Ben Hazard watched the *Creation*.

The great ship towered in the rain, so enormous that it was hard to imagine that it had ever moved. It might have been there always, but it was totally alien, out of place in its setting of hills and earth and sodden grasses.

Circular ports opened in the vast ship like half a hundred awakening eyes. Bright warm yellow light splashed out through the rain. Men—strangely dressed in dark, close-fitting tunics—floated out of the ship and down to the ground on columns of the yellow light.

The men were human, no different physically from Ben or Ed.

Equipment of some sort drifted

down the shafts of light: strange spider-legged machines, self-propelled crates that gleamed in the light, shielded stands that might have been for maps or charts, metallic robots that were twice the size of a man.

It was still raining, but the men ignored it. The yellow light deflected the rain—Ben could see water dripping down the yellow columns as though solid tubes had been punched through the air—and the rain was also diverted from the men and their equipment.

The men from the ship moved quickly, hardly pausing to glance around them. They fanned out and went to work with the precision of trained specialists who knew exactly what they were doing.

Incredible as it was, Ben thought that he knew what they were doing too.

The spider-legged machines stayed on the valley floor, pulsing. Most of the men, together with three of the robots and the bulk of the self-propelled crates, made their way up to the cave Ben and Ed had just left and vanished inside.

"Want to bet on what's in those crates?" Ben whispered.

"Haven't the faintest idea, but two-bits says you spell it b-o-n-e-s."

The great ship waited, the streams of yellow light still spilling out into the rain. Five men pored over the shielded stands, looking for all the world like engineers surveying a site. Others worked over the spider-legged machines, setting up tubes of

the yellow light that ran from the machines to the rocky hills. Two of the robots, as far as Ben could see, were simply stacking rocks into piles.

After three hours, when it was already growing dark, the men came back out of the cave. The robots and the crates were reloaded through the ship's ports and the uniformed men themselves boarded the ship again.

Night fell. Ben stretched to ease his cramped muscles, but he didn't take his eyes from the viewer for a second.

The rain died down to a gentle patter and then stopped entirely. The overcast lifted and slender white clouds sailed through the wind-swept sky. The moon rose, fat and silver, its radiance dimming the burning stars.

The impossible ship, towering so complacently beneath the moon of Earth, was a skyscraper of light. It literally hummed with activity. Ben would have given a lot to know what was going on inside that ship, but there was no way to find out.

The pulsing spider-legged machines clicked and buzzed in the cold of the valley night. Rocks were conveyed along tubes of the yellow light to the machines, which were stamping something out by the hundreds of thousands. Something . . .

#### Artifacts?

The long, uncanny night ended. Ben and Ed watched in utter fascination, their fears almost forgotten, sleep never even considered.

Dawn streaked the eastern sky,

touching the clouds with fingers of rose and gold. A light breeze rustled the wet, heavy grasses. Water still dripped from the rocks.

The uniformed men came back out of the ship, riding down on the columns of yellow light. The robots gathered up some immense logs and stacked them near the mouth of the cave. They treated the wood with some substance to dry it, then ignited a blazing fire.

Squads of men moved over the valley floor, erasing all traces of their presence. One of them got quite close to the Bucket and Ben felt a sudden numbing chill. What would happen if they were seen? He was no longer worried about himself. But what about all the men who were to live on the Earth? Or—

The squad moved away.

Just as the red sun lifted behind the hills, while the log fire still blazed by the cave, the ship landed the last of its strange cargo.

Human beings.

Ben felt the sweat grow clammy in the palms of his hands.

They floated down the shafts of yellow light, shepherded by the uniformed men. There were one hundred of them by actual count, fifty men and fifty women. There were no children. They were a tall, robust people, dressed in animal skins. They shivered in the cold and seemed dazed and uncomprehending. They had to be led by the hand, and several had to be carried by the robots.

The uniformed men took them

across the wet valley, a safe distance away from the ship. They huddled together like sheep, clasping one another in sexless innocence. Their eyes turned from the fire to the ship, understanding neither. Like flowers, they lifted their heads to the warmth of the sun.

It was a scene beyond age; it had always been. There were the rows of uniformed men, standing rigidly at attention. And there were the clustered men in animal skins, waiting without hope, without regret.

An officer—Ben thought of him that way, though his uniform was no different from the others—stepped forward and made what seemed to be a speech. At any rate, he talked for a long time—nearly an hour. It was clear that the dazed people did not understand a word of what he was saying, and that, too, was older than time.

*It's a ceremony, Ben thought. It must be some kind of ritual. I hadn't expected that.*

When it was over, the officer stood for a long minute looking at the huddle of people. Ben tried to read his expression in the viewer, but it was impossible. It might have been regret. It might have been hope. It might have been only curiosity.

It might have been anything.

Then, at a signal, the uniformed men turned and abandoned the others. They walked back to their waiting ship and the columns of yellow light took them inside. The ports closed.

Ten minutes later, the ship came to life.

White flame flared beneath its jets and the earth trembled. The terrible roar came again. The people who had been left behind fell to the ground, covering their ears with their hands. The great ship lifted slowly into the blue sky, then faster and faster—

It was gone, and only the sound remained, the sound of thunder . . .

In time, that, too, was gone.

Ben watched his own ancestors with an almost hypnotic fascination. They did not move.

*Get up, get up—*

The skin-clad people stood up shakily after what seemed to be hours. They stared blankly at one another. As though driven by some vague instinct that spoke through their shock, they turned and looked at the blazing fire that burned by the mouth of the cave.

Slowly, one by one, they pulled themselves over the rocks to the fire. They stood before it, seeking a warmth they could not understand.

The sun climbed higher into the sky, flooding the rain-clean world with golden light.

The people stood for a long time by the cave entrance, watching the fire burn down. They did nothing and said nothing.

*Hurry, hurry.* The voice spoke again in Ben's brain. He shook his head. Was he thinking about those dazed people out there, or was someone thinking about him?

Gradually, some of them seemed

to recover their senses. They began to move about purposefully—still slowly, still uncertainly, like men coming out from under an anaesthetic. One man picked up a fresh log and threw it on the fire. Another crouched down and fingered a chipped piece of flint he found on a rock. Two women stepped behind the fire and started into the dark cave.

Ben turned away from the viewer, his unshaven face haggard. "Meet Cro-Magnon," he said, waving his hand.

Ed lit a cigarette, his first in eighteen hours. His hand was shaking. "Meet everybody, you mean. Those jokers planted the other boys—Neanderthal and whatnot—back in the cave before they landed the living ones."

"We came out of that ship too, Ed."

"I know—but where did the *ship* come from? And why?"

Ben took a last long look at the people huddled around the fire. He didn't feel like talking. He was too tired to think. None of it made any sense.

What kind of people could *do* a thing like that?

And if they hadn't—

"Let's go home," Ed said quietly.

They went out and removed the plastic cover, and then set the controls for New Mexico Station in a world that was no longer their own.

Old Franz Gottwald sat behind his desk. His white suit was freshly pressed and his hair was neatly

combed. He stroked his beard in the old familiar gesture, and only the gleam in his eyes revealed the excitement within him.

"It has always been my belief, gentlemen, that there is no substitute for solid thinking based on verified facts. There is a time for action and there is a time for thought. I need hardly remind you that action without thought is pointless; it is the act of an animal, the contraction of an earthworm. We have the facts we need. You have been back for three days, but the thinking is yet to be done."

"We've been beating our brains out," Ben protested.

"That may be, Ben, but a man can beat his brains out with a club. It is not thinking."

"*You* try thinking," Ed said, grinding out a cigarette.

Gottwald smiled. "You are too old to have your thinking done for you, Edward. I have given you all I can give. It is your turn now."

Ben sat back in his chair and lit his pipe. He took his time doing it, trying to clear his mind. He had to forget those frightened people huddled around a fire in the mists of time, had to forget the emotions he had felt when the great ship had left them behind. Gottwald was right, as always.

The time had come for thought.

"O.K.," he said. "We all know the facts. Where do we go from here?"

"I would suggest to you, gentlemen, that we will get no answers

until we begin to ask the right questions. That is elementary, if I may borrow from Mr. Holmes."

"You want questions?" Ed laughed shortly. "Here's one, and it's a dilly. There's a hole in all this big enough to drive the American Anthropological Association through in a fleet of trucks. What about the apes?"

Ben nodded. "You quoted Conan Doyle, Franz, so I'll borrow a line from another Englishman—Darwin's pal Huxley. 'Bone for bone, organ for organ, man's body is repeated in the body of the ape.' Hell, we all know that. There are differences, sure, but the apes are closer to men than they are to monkeys. If man didn't evolve on Earth—"

"You've answered your own question, Ben."

"Of course!" Ed fished out another cigarette. "If man didn't evolve on Earth, then neither did the apes. That ship—or some ship—brought them both. But that's impossible."

"Impossible?" Franz asked.

"Maybe not," Ben said slowly. "After all, there are only four living genera of apes—two in Africa and two in Asia. We could even leave out the gibbon; he's a pretty primitive customer. It *could* have been done."

"Not for all the primates," Ed insisted. "Not for all the monkeys and lemurs and tarsiers, not for all the fossil primate bones. It would have made Noah's ark look like a rowboat."

"I would venture the suggestion

that your image is not very apt," Gottwald said. "That ship *was* big enough to make any of our ships look like rowboats."

"Never mind," Ben said, determined not to get sidetracked. "It doesn't matter. Let's assume that the apes were seeded, just as the men were. The other primates could have evolved here without outside interference, just as the other animals did. That isn't the real problem."

"I wonder," Ed said. "Could that ship have come out of *time* as well as space? After all, if we have time travel they must have it. They could do anything—"

"Bunk," Gottwald snorted. "Don't let yourself get carried away, Edward. Anything is *not* possible. A scientific law is a scientific law, no matter who is working with it, or where, or when. We know from the Winfield-Homans Equations that it is impossible to go back into time and alter it in any way, just as it is impossible to go into the future which does not yet exist. There are no paradoxes in time travel. Let's not make this thing harder than it is by charging off into all the blind alleys we can think of. Ben was on the right track. What is the real problem here?"

Ben sighed. He saw the problem all too clearly. "It boils down to this, I think. *Why* did they plant those fossils—and probably the apes too? I can think of fifty reasons why they might have seeded men like themselves on a barren planet—popu-



lation pressure and so forth—but why go to all the trouble of planting a false evolutionary picture for them to dig up later?"

"Maybe it isn't false," Ed said slowly.

Franz Gottwald smiled. "Now you're *thinking*, Edward."

"Sorry, Ed. I don't follow you. You saw them plant those bones. If that isn't a prime example of salting a site, then what the devil is it?"

"Don't shoot, pal. I was trying to say that the fossils could have been planted and *still* tell a true story. Maybe I'm just an old codger set in his ways, but I can't believe that human evolution is a myth. And there's

a clincher, Ben: why bother with the apes if there is no relationship?"

"I still don't see—"

"He means," Gottwald said patiently, "that the fossil sequence is a true one—*some place else*."

Ed nodded. "Exactly. The evolutionary series is the genuine article, but man developed on their world rather than on ours. When they seeded men on Earth, they also provided them with a kind of history book—if they could read it."

Ben chewed on his pipe. It made sense, to the extent that anything made sense any more. "I'll buy that. But where does it leave us?"

"Still up that well-known creek. Every answer we get just leads back

to the same old question. *Why* did they leave us a history book?"

"Answer that one," Gottwald said, "and you win the gold cigar."

Ben got to his feet. His head felt as though it were stuffed with dusty cotton.

"Where are you going?"

"I'm going fishing. As long as I'm up the creek I might as well do something useful. I'll see you later."

"I hope you catch something," Ed said.

"So do I," Ben Hazard said grimly.

The car hummed sleepily across the monotonous flatlands of New Mexico, passed through the gently rolling country that rested the eye, and climbed into the cool mountains where the pines grew tall and the grass was a thick dark green in the meadows.

Ben loved the mountains. As he grew older, they meant more and more to him. The happiest times of his life had been spent up next to the sky, where the air was crisp and the streams ran clear. He needed the mountains, and he always returned to them when the pressure was too much to bear.

He turned off the main road and jolted over a gravel trail; paved roads and good fishing were mutually exclusive, like cities and sanity. He noted with approval that the clouds were draping the mountain peaks, shadowing the land below. When the sun was too bright the fish could see a man coming.

He took a deep breath, savoring the tonic of the air.

*Relax, that's the ticket.*

He checked to see that no interloper had discovered his favorite stretch of water, then parked his car by the side of Mill Creek, a gliding stream of crystal-clean water that tumbled icily out of the mountains and snaked its lazy way through the long green valley. He grinned like a kid with his first cane pole.

Ben pulled on his waders, assembled his rod with practiced skill, and tied on his two pet flies—a Gray Hackle Yellow and a Royal Coachman. He hung his net over one shoulder and his trout basket over the other, lit his pipe, and waded out into the cold water of Mill Creek.

He felt wonderful. He hooked a nice brook trout within five minutes, taking him from a swirl of dark water shadowed by the bank of the stream. He felt the knots and the tensions flow out of him like melting snow, and that was the first step.

He *had* to relax. There was no other way.

Consider the plight of a baseball player in a bad slump. He gives it all he has, tries twice as hard as usual, but everything he does backfires. His hits don't fall in, he misses the easy grounders. He lies awake at night and worries.

"Relax, Mac," his manager tells him. "All you gotta do is *relax*. Take it easy."

Sure, but how?

It was the same with a tough scientific problem. Ben had long ago

discovered that persistent and orderly logic could take him only so far. There came a time when no amount of forced thinking would get the job done.

The fresh insights and the new slants seldom came to him when he went after them, no matter how hard he tried. In fact, the more he sweated over a problem the more stubbornly recalcitrant his mind became. The big ideas, and the good ones, came to him in a flash of almost intuitive understanding—a flash that was conditioned by what he knew, of course, but a flash that did not come directly from the conscious mind.

The trick was to let the conscious mind get out of the way, let the message get through—

In Ben's case, go fishing.

It took him two hours, seven trout, and part of a banana to get the answer he sought.

He had taken a long, cool drink from the stream, cleaned his fish, and was sitting down on a rock to eat the lunch he had packed when the idea came.

He had peeled a banana and taken one bite of it when his mind was triggered by a single, innocuous word:

*Banana.*

Not just any old banana, of course. A specific one, used for a specific purpose.

Remember?

Charles Darwin and Cleopatra, two chimpanzees in their cages. Charles Darwin pushing his ape

brain to the limit to fit two sticks together. Why?

To get a banana.

One lousy banana.

That was well enough, but there was more. Darwin might get his banana, and that was all he cared about. But who had placed the sticks in the cage, who had supplied the banana?

And why?

That was an easy one. It was so simple a child could have figured it out. Someone had given Charles Darwin two sticks and a banana for just one reason: to see whether or not he could solve the problem.

In a nutshell, a scientific experiment.

Now, consider another Charles Darwin, another problem.

Or consider Ben Hazard.

What is the toughest problem a man can tackle? Howells pointed it out many years ago. Of all the animals, man is the only one who wonders where he has come from and where he is going. All the other questions are petty compared to that one. It pushes the human brain to the limit . . .

Ben stood up, his lunch forgotten. It was all so obvious.

Men had been seeded on the Earth, and a problem had been planted with them—a real problem, one capable of yielding to a true solution. A dazed huddle of human beings had been abandoned by a fire in the mouth of a cave, lost in the morning of a strange new world. Then they had been left strictly

alone; there was no evidence that they had been helped in any way since that time.

Why?

To see what they could do.

To see how long it would take them to solve the problem.

In a nutshell, a scientific experiment.

Ben picked up his rod and started back toward the car.

There was one more thing, one more inevitable characteristic of a scientific experiment. No scientist merely sets up his experiment and then goes off and forgets about it, even if he is the absolute ultimate in absent-minded professors.

No.

He has to stick around to see how it all comes out. He has to observe, take notes.

It was monstrous.

The whole history of man on Earth . . .

Ben climbed into his car, started the engine.

*There's more. Face up to it.*

Suppose that you had set up a fantastic planetary experiment with human beings. Suppose that you—or one of your descendants, for human generations are slow—came back to check on your experiment. What would you do, what would you be?

A garage mechanic?

A shoe salesman?

A pool room shark?

Hardly. You'd have to be in a position to know what was going on. You'd have to work in a field where you could find out the score.

In a word, you'd be an anthropologist.

*There's still more. Take it to the end of the line.*

Now, suppose that man on Earth cracked the time barrier. Suppose a Temporal Research Project was set up. Wouldn't you be in on it, right at the top?

Sure.

You wouldn't miss it for anything.

Well, who fit the description? It couldn't be Ed; Ben had known him most of his life, known his folks and his wife and his kids, visited the Texas town that had been his home.

It wasn't Ben.

That left Franz Gottwald.

Franz, who had come from Germany and never talked about his past. Franz, with the strangely alien accent. Franz, who had no family. Franz, who had contributed nothing to the project but shrewd, prodding questions . . .

Franz.

The Grand Old Man.

Ben drove with his hands clenched on the wheel and his lips pressed into a thin, hard line. Night had fallen by the time he got out of the mountains, and he drove across an enchanted desert beneath the magic of the stars. The headlights of his car lanced into the night, stabbing, stabbing—

He passed the great New Mexico rocket base, from which men had hurled their missiles to the moon and beyond. There had been talk of a manned shot to Mars . . .

How far would the experimenters let them go?

Ben lit a cigarette, not wanting to fool with his pipe in the car. He was filled with a cold anger he had never known before.

He had solved the problem.

Very well.

It was time to collect his banana.

It was after midnight when Ben got home.

He stuck his fish in the freezer, took a shower, and sat down in his comfortable armchair to collect his thoughts. He promptly discovered yet another fundamental truth about human beings: when they get tired enough, they sleep.

He woke up with a start and looked at his watch. It was five o'clock in the morning.

Ben shaved and was surprised to find that he was hungry. He cooked himself some bacon and scrambled eggs, drank three cups of instant coffee, and felt ready for anything.

Even Franz.

He got into his car and drove through the still-sleeping town to Gottwald's house. It looked safe and familiar in the pale morning light. As a matter of fact, it looked a lot like his own house, since both had been supplied by the government.

That, he thought, was a laugh.

The government had given *Gottwald* a house to live in.

He got out of his car, walked up to the door, and rang the bell. Franz never got to the office before nine,

and his car was still in the garage.

His ring was greeted by total silence.

He tried again, holding his finger on the bell. He rang it long enough to wake the dead.

No answer.

Ben tried the door. It was unlocked. He took a deep breath and stepped inside. The house was neat and clean. The familiar books were on the shelves in the living room. It was like stepping into his own home.

"Franz! It's me, Ben."

No answer.

Ben strode over to the bedroom, opened the door, and looked inside. The bed was tidily made, and Franz wasn't in it. Ben walked through the whole house, even peering inside the closets, before he was satisfied.

Franz wasn't home.

*Fine. A scientist keeps records, doesn't he?*

Ben proceeded to ransack the house. He looked in dresser drawers, on closet shelves, even in the refrigerator. He found nothing unusual. Then he tried the obvious.

He opened Gottwald's desk and looked inside.

The first thing he saw was a letter addressed to himself. There it was, a white envelope with his name typed on it: *Dr. Benjamin Wright Hazard*.

Not to be opened until Christmas?

Ben took the letter, ripped it open, and took out a single sheet of paper. He started to read it, then groped for a chair and sat down.

The letter was neatly typed. It said:

*My Dear Ben: I have always believed that a scientist must be capable of making predictions. This is not always an easy matter when you are dealing with human beings, but I have known you for a long, long time.*

*Obviously, you are searching my home, or you would not be reading this note. Obviously, if you are searching my home, you know part of the truth.*

*If you would like to know the rest of the story, the procedure is simple. Look behind the picture of the sand-painting in my bedroom. You will find a button there. Press the button for exactly five seconds. Then walk out into my patio and stand directly in front of the barbecue pit.*

*Trust me, Ben. I am not a cannibal.*

The letter was signed with Gottwald's scrawled signature.

Ben got up and walked into the bedroom. He looked behind the picture that was hanging over the dresser. There was a small red button.

*Press the button for exactly five seconds.*

And then—what?

Ben replaced the picture. The whole thing was a trifle too reminiscent of a feeble-minded practical joke. Press the button and get a shock. Press the button and get squirted with water. Press the button and blow up the house—

No. That was absurd.

Wasn't it?

He hesitated. He could call Ed, but then Ed would insist on coming over right away—and Ed had a wife and kids. He could call the police, but the story he had to tell would have sounded absolutely balmy. He had no proof. He might as well recite "Gunga Din."

He went back to Gottwald's desk, found some paper, and typed a letter. He outlined the theory he had formed and wrote down exactly what he was going to do. He put the letter into an envelope, addressed the envelope to Ed, stamped it, and went outside and dropped it in the mailbox on the corner.

He went back into the house.

This time he did not hesitate—not for a second.

He punched the button behind the picture for exactly five seconds. Nothing happened. He went out into the patio and stood directly in front of the barbecue pit.

The wall around the patio hid the outside world, but the blue sky overhead was the same as ever. He saw nothing, heard nothing.

"Snipe hunt," he said aloud.

Then, with breathtaking suddenness, something *did* happen.

There was an abrupt stillness in the air, a total cessation of sound. It was as though invisible glass walls had slipped silently into place and sealed off the world around him.

There was no perceptible transition. One moment the cone of yellow light was not there, and the next it was. It surrounded him: taut, liv-

ing, seething with an energy that prickled his skin.

He knew that yellow light.

He had seen it once before, in the dawn of time . . .

Ben held his breath; he couldn't help it. He felt strangely weightless, buoyant, a cork in a nameless sea—

His feet left the ground.

"Good God," Ben said.

He was lifted into the yellow light, absorbed in it. He could see perfectly, and it didn't help his stomach any. He could see the town below him—there was Gottwald's patio, the barbecue pit, the adobe house. He began to regret the bacon and eggs he had eaten.

He forced himself to breathe again. The air was warm and tasteless. He rose into the sky, fighting down panic.

*Think of it as an elevator. It's just a way of getting from one place to another. I can see out, but of course nothing is visible from the outside . . .*

*But then how did I see the yellow light before?*

*This must be different. They couldn't risk being seen—*

*Relax!*

But he kept going higher, and faster.

The Earth was far away.

It was an uncanny feeling—not exactly unpleasant, but he didn't care for the view. It was like falling through the sky. It was impossible to avoid the idea that he was falling, that he was going to hit something . . .

The blue of the sky faded into black, and he saw the stars.

*Where am I going, where are they taking me?*

*There!*

*Look up, look up—*

There it was, at the end of the tunnel of yellow light.

It blotted out the stars.

It was huge even against the immense backdrop of space itself. It stunned his mind with its size, that sleeping metal beast, but he recognized it.

It was the same ship that had landed the first men on Earth.

Dark now, dark and vast and lonely—but the same ship.

The shaft of yellow light pulled him inside; there was no air lock. As suddenly as it had come, the light was gone.

Ben stumbled and almost fell. The gravity seemed normal, but the light had supported him for so long that it took his legs a moment to adjust themselves.

He stood in a cool green room. It was utterly silent.

Ben swallowed hard.

He crossed the room to a metal door. The door opened before he reached it. There was only blackness beyond, blackness and the total silence of the dead.

Ben Hazard tried to fight down the numbing conviction that the ship was empty.

There is an almost palpable air of desolation about long deserted things, about empty houses and

derelict ships and crumbling ruins. There is a special kind of silence about a place that has once known life and knows it no longer. There is a type of death that hovers over things that have not been *used* for a long, long time.

That was the way the ship felt.

Ben could see only the small green room in which he stood and the corridor of darkness outside the door. It could have been only a tiny fraction of the great ship, only one room in a vast city in the sky. But he *knew* that the men who had once lived in the ship were gone. He knew it with a certainty that his mind could not question.

It was a ghost ship.

He knew it was.

That was why his heart almost stopped when he heard the footsteps moving toward him through the silence.

Heavy steps.

Metallic steps.

Ben backed away from the door. He tried to close it but it would not shut. He saw a white light coming at him through the dark tunnel. The light was higher than a man—

Metallic steps?

Ben got a grip on himself and waited. *You fool, you knew they had robots. You saw them. Robots don't die, do they?*

Do they kill?

He saw it now, saw its outline behind the light. Twice the size of a man, its metal body gleaming.

It had no face.

The robot filled the doorway and

stopped. Ben could hear it now: a soft whirring noise that somehow reminded him of distant winds. He told himself that it was just a machine, just an animated hunk of metal, and his mind accepted the analysis. But it is one thing to know what a robot is, and it is quite another to find yourself in the same room with one.

"Well?" Ben said. He had to say something.

The robot was evidently under no such compulsion. It said nothing and did nothing. It simply stood there.

"You speak English, of course?" Ben said, recalling the line from an idiotic story he had once read.

If the robot spoke anything, it wasn't English.

After a long, uncomfortable minute, the robot turned around and walked into the dark corridor, its light flashing ahead of it. It took four steps, stopped, and looked back over its shoulder.

There was just one thing to do, and one way to go.

Ben nodded and stepped through the doorway after the robot.

He followed the giant metallic man along what seemed to be miles of featureless passageways. Ben heard no voices, saw no lights, met no living things.

He felt no fear now; he was beyond that. He knew that he was in a state of shock where nothing could get through to him, nothing could hurt him. He felt only a kind of sadness, the sadness a man knows when he walks through the tunnels of a

pyramid or passes a graveyard on a lonely night.

The ship that men had built was so vast, so silent, so empty . . .

A door opened ahead of them.

Light spilled out into the corridor.

Ben followed the robot into a large, comfortable room. The room was old, old and worn, but it was alive. It was warm and vital and human because there were two people in it. Ben had never before been quite so glad to see anyone.

One of the persons was an elderly woman he had never seen before.

The other was Franz Gottwald.

"Hello, Ben," he said, smiling. "I don't believe you've met my wife."

Ben didn't know whether he was coming into a nightmare or coming out of one, but his manners were automatic.

"I'm very pleased to meet you," he said, and meant it.

The room had a subtle strangeness about it that once more reminded Ben of a dream. It was not merely the expected strangeness of design of a new kind of room, a room lost in the lonely miles of a silent spaceship; it was an out-of-phase oddness that at first he could not identify.

Then he caught it. There were alien things in the room: furniture that was planned for human beings but produced by a totally different culture pattern, carvings that were grotesque to his eyes, rugs that glowed in curiously wrong figures. But there were also familiar, everyday

items from the world he knew: a prosaic reading lamp, a coffee pot bubbling on a table, some potted plants, a framed painting by Covarrubias. The mixture was a trifle jarring, but it did have a reassuring air of homeliness.

*How strange the mind is. At a time like this, it concentrates on a room.*

"Sit down, sit down," Franz said. "Coffee?"

"Thank you." Ben tried a chair and found it comfortable.

The woman he persisted in thinking of as Mrs. Gottwald—though that was certainly not her actual name—poured out a cup and handed it to him. Her lined, delicate face seemed radiant with happiness, but there were tears in her eyes.

"I speak the language too a little," she said hesitantly. "We are so proud of you, so happy—"

Ben took a sip of the coffee to cover his embarrassment. He didn't know what he had expected, but certainly not *this*.

"Don't say anything more, Armin," Franz said sharply. "We must be very careful."

"That robot of yours," Ben said. "Couldn't you send him out for oiling or something?"

Franz nodded. "I forgot how weird he must seem to you. Please forgive me. I would have greeted you myself, but I am growing old and it is a long walk." He spoke to the robot in a language Ben had never heard, and the robot left the room.

Ben relaxed a little. "Do you two live up here all alone?"

*An inane question. But what can I do, what can I say?*

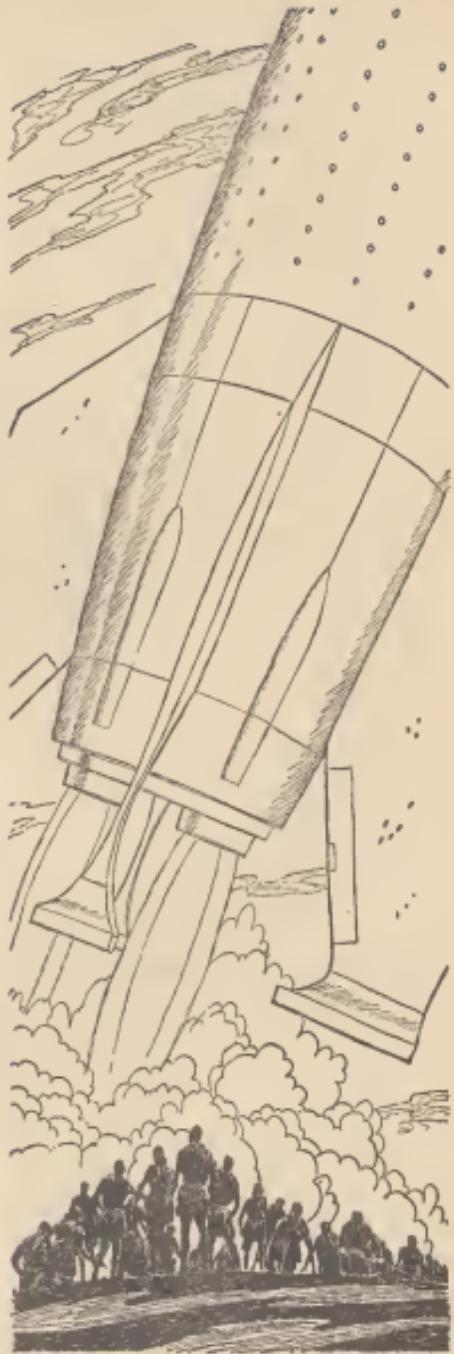
Old Franz seated himself next to Ben. He still wore his white suit. He seemed tired, more tired than Ben had ever seen him, but there was a kind of hope in his eyes, a hope that was almost a prayer.

"Ben," he said slowly, "it is hard for me to talk to you—now, I can imagine how you must feel after what you have been through. But you must trust me a little longer. Just forget where you are, Ben—a spaceship is just a ship. Imagine that we are back at the Station, imagine that we are talking as we have talked so many times before. You must think clearly. This is important, my boy, more important than you can know. I want you to tell me what you have discovered—I want to know what led you here. Omit nothing, and choose your words with care. Be as specific and precise as you can. Will you do this one last thing for me? When you have finished, I think I will be able to answer all your questions."

Ben had to smile. "*Be as specific and precise as you can.*" How many times had he heard Franz use that very phrase on examinations?

He reached for his pipe. For a moment he had a wild, irrational fear that he had forgotten it—that would have been the last straw, somehow—but it was there. He filled it and lit it gratefully.

"It's your party, Franz. I'll tell you what I know."



"Proceed, Ben—and be careful."

Mrs. Gottwald—Armin?—sat very still, waiting.

The ship was terribly silent around them.

Ben took his time and told Franz what he knew and what he believed. He left nothing out and made no attempt to soften his words.

When he was finished, Gottwald's wife was crying openly.

Franz, amazingly, looked like a man who had suddenly been relieved of a sentence of death.

"Well?" Ben asked.

Gottwald stood up and stroked his white beard. "You must think I am some kind of a monster," he said, smiling.

Ben shrugged. "I don't know."

Mrs. Gottwald dried her eyes. "Tell him," she said. "You can tell him now."

Gottwald nodded. "I am proud of you, Ben, very proud."

"I was right?"

"You were right in the only thing that matters. The fossils *were* a test, and you have passed that test with flying colors. Of course, you had some help from Edward—"

"I'll give him part of the banana."

Gottwald's smile vanished. "Yes. Yes, I daresay you will. But I am vain enough to want to clear up one slight error in your reconstruction. I do not care for the role of monster, and mad scientists have always seemed rather dull to me."

"The truth is the truth."

"A redundancy, Ben. But never

mind. I must tell you that what has happened on Earth was *not* a mere scientific experiment. I must also tell you that I am not only a scientist who has come back, as you put it, to see how the chimpanzees are doing. In fact, I didn't come back at all. We—my people—never left. I was born right here in this ship, in orbit around the Earth. It has always been here."

"For twenty-five thousand years?"

"For twenty-five thousand years."

"But what have you been doing?"

"We've been waiting for you, Ben. You almost did not get here in time. My wife and I are the only ones left."

"Waiting for *me*? But—"

Gottwald held up his hand. "No, not this way. I can show you better than I can tell you. If my people had lived—my other people, I should say, for I have lived on the Earth most of my life—there would have been an impressive ceremony. That can never be now. But I can show you the history lesson we prepared. Will you come with me? It is not far."

The old man turned and walked toward the door, his wife leaning on his arm.

"So long," she whispered. "We have waited so long."

Ben got up and followed them into the corridor.

In a large assembly room filled with empty seats, somewhere in the great deserted ship, Ben saw the history of Man.

It was more than a film, although a screen was used. Ben lived the history, felt it, was a part of it.

It was not a story of what King Glotz did to King Goop; the proud names of conventional history fade into insignificance when the perspective is broad enough. It was a story of Man, of all men.

It was Gottwald's story—and Ben's.

Ben lived it.

Millions of years ago, on a world that circled a sun so far away that the astronomers of Earth had no name for it and not even a number, a new animal called Man appeared. His evolution had been a freakish thing, a million-to-one shot, and it was not likely to be repeated.

Man, the first animal to substitute cultural growth for physical change, was an immediate success. His tools and his weapons grew ever more efficient. On his home world, Man was a patient animal—but he was Man.

He was restless, curious. One world could not hold him. He built his first primitive spaceships and set out to explore the great dark sea around him. He established colonies and bases on a few of the worlds of his star system. He looked outward, out along the infinite corridors of the universe, and it was not in him to stop.

He tinkered and worked and experimented.

He found the faster-than-light drive.

He pushed on through the terrible emptiness of interstellar space. He

touched strange worlds and stranger suns—

And he found that Man was not alone.

There were ships greater than his, and Beings—

Man discovered the Enemy.

It was not a case of misunderstanding, not a failure of diplomacy, not an accident born of fear or greed or stupidity. Man was a civilized animal. He was careful, reasonable, prepared to do whatever was ethically right.

He had no chance.

The Enemy—pounced. That was the only word for it. They were hunters, destroyers, killers. They were motivated by a savage hunger for destruction that Man had never known. They took many shapes, many forms.

Ben saw them.

He saw them rip ships apart, gut them with an utter ferocity that was beyond understanding. He saw them tear human beings to shreds, and eat them, and worse—

Ben screamed.

The Beings were more different from Man than the fish that swim in the sea, and yet . . .

Ben recognized them. He knew them.

They were there, all of them.

Literally, the Beings of nightmares.

The monsters that had troubled the dark sleeps of Earth, the things that crawled through myths, the Enemy who lived on the black side of the mind. The dragons, the ser-

pents, the faces carved on masks, the Beings shaped in stones dug up in rotting jungles—

### The Enemy.

*We on Earth have not completely forgotten. We remember, despite the shocks that cleansed our minds. We remember, we remember. We have seen them in the darkness that lives always beyond the fires, we have heard them in the thunder that booms in the long, long night.*

*We remember.*

It was not a war. A war, after all, is a specific kind of contest with rules of a sort. There were no rules. It was not a drive for conquest, not an attempt at exploitation. It was something new, something totally alien.

It was destruction.

It was extermination.

It was a fight between two different kinds of life, as senseless as a bolt of lightning that forked into the massive body of a screaming dinosaur.

Man wasn't ready.

He fell back, fighting where he could.

The Enemy followed.

Whether he liked it or not, Man was in a fight to the finish.

He fought for his life. He pushed himself to the utmost, tried everything he could think of, fought with everything he had. He exhausted his ingenuity. The Enemy countered his every move.

There was a limit.

Man could not go on.

Ben leaned forward, his fists

clenched on his chair. He was a product of his culture. He read the books, saw the tri-di plays. He expected a happy ending.

There wasn't one.

Man lost.

He was utterly routed.

He had time for one last throw of the dice, one last desperate try for survival. He did his best.

He worked out the Plan.

It wasn't enough to run away, to find a remote planet and hide. It wasn't enough just to gain time.

Man faced the facts. He had met the Enemy and he had lost. He had tried everything he knew, and it hadn't been good enough. One day, no matter how far he ran, he would meet the Enemy again.

What could he do?

Man lives by his culture, his way of life. The potential for any culture is great, but it is not limitless. Culture has a way of putting blinders on its bearers; it leads them down certain paths and ignores others. Technological complexity is fine, but it is impotent without the one necessary ingredient:

*Ideas.*

Man needed new ideas, radically new concepts.

He needed a whole new way of thinking.

Transplanting the existing culture would not do the job. It would simply go on producing variants of the ideas that had already been tried.

Man didn't need transplanting.

He needed a transfusion, a transfusion of ideas.

He needed a brand new culture with fresh solutions to old problems.

There is only one way to get a really different culture pattern: grow it from scratch.

Sow the seeds and get out.

Man put the Plan into effect.

With the last of his resources, he outfitted four fugitive ships and sent them out into the wastes of the seas between the stars.

"We don't know what happened to the other three ships," Franz Gottwald said quietly when the projection was over. "No ship knew the destination of any other ship. They went in different directions, each searching for remote, hidden worlds that might become new homes for men. There is no way of knowing what became of the others; I think it highly unlikely that any of them survived."

"Then Earth is all there is?"

"That is what we believe, Ben—we have to go ahead on that assumption. You know most of the rest of the story. This ship slipped through the Enemy and found the Earth. We landed human beings who were so conditioned that they could remember little or nothing, for they had to begin all over again. We planted the fossils and the apes as a test, just as you supposed."

"But why? There was no need for such a stunt—"

Gottwald smiled. "It wasn't a stunt, my boy. It was the key to everything. You see, we had to warn the men of Earth about what they

had to face. More than that, once their cultures had developed along their own lines, we had to share what we had with them. I need hardly remind you that this ship is technologically many thousands of years ahead of anything the Earth has produced. But we couldn't turn the ship over to them until we were *certain* they were ready. You don't give atomic bombs to babies. The men of Earth had to *prove* that they could handle the toughest problem we could dream up. You solved it, Ben."

"I didn't do it alone."

"No, of course not. I can tell you now that my people—my other people—never did invent time travel. That was a totally unexpected means of tackling the problem; we never could have done it. It is the most hopeful thing that has happened."

"But what became of the men and women who stayed here on the ship?"

Franz shook his head. "Twenty-five thousand years is a long, long time, Ben. We were a defeated people. We worked hard; we were not idle. For one thing, we prepared dictionaries for every major language on Earth so that all the data in our libraries will be available to you. But man does not live well inside a ship. Each generation we became fewer; children were very scarce."

"It's like the old enigma of the cities, isn't it?"

"Exactly. No city in human history has ever reproduced its population. Urban births are always lower than rural ones. All cities have al-

ways drawn their personnel from the surrounding countryside. The ship was sealed up; we had no rural areas. It was only a matter of time before we were all gone. My wife and I were the last ones, Ben—and we had no children."

"We were so afraid," Mrs. Gottwald said. "So afraid that you would not come before it was too late . . ."

"What would you have done?"

Franz shrugged wearily. "That is one decision I was spared. I did cheat a little, my boy. I was careful to give you no help, but I did plant some projectors near you that kept you stirred up. They broadcast frequencies that . . . ah . . . stimulate the mind, keep it in a state of urgency. Perhaps you noticed them?"

Ben nodded. He remembered the voice that spoke in his skull:

*Hurry, hurry—*

"Franz, what will happen now?"

Gottwald stroked his beard, his eyes very tired. "I can't tell you that. I don't know the answer. I have studied the men of Earth for most of my life, and I still don't know. You are a tough people, Ben, tougher than we ever were. You have fought many battles, and your history is a proud one. But I cannot read the future. I have done my best, and the rest is up to you."

"It's a terrible responsibility."

"Yes, for you and for others like you it will be a crushing burden. But it will be a long fight; we will not live to see more than the beginning of it. It will take centuries for the men of Earth to learn all that is in

this ship. It's an odd thing, Ben—I have never seen the Enemy face to face. You will probably never see them. But what we do now will determine whether mankind lives or dies."

"It's too much for one man."

"Yes." Gottwald smiled, remembering. "It is."

"I don't know where to begin."

"We will wait for Edward—he will be here tomorrow, unless I don't know him at all—and then the three of us will sit down together for one last time. We will think it out. I am very tired, Ben; my wife and I have lived past our time. It is hard to be old, and to have no children. I always thought of you and Edward as my sons; I hope you do not find this too maudlin."

Ben searched for words and couldn't find any.

Franz put his arm around his wife. "Sometimes, when the job was too big for me, when I felt myself giving up, I would walk up into the old control room of this ship. My wife and I have stood there many times. Would you like to see it?"

"I need it, Franz."

"Yes. So do I. Come along."

They walked for what seemed to be miles through the dark passages of the empty ship, then rode a series of elevators up to the control room.

Franz switched on the lights.

"The ship is not dead, you know," he said. "It is only the people who are gone. The computers still maintain the ship's orbit, and the defen-

sive screens still make it invulnerable to detection—you wouldn't have seen it if you had not been coming up the light tube, and there is no way the ship can be tracked from Earth. What do you think of the control room?"

Ben stared at it. It was a large chamber, acres in extent, but it was strangely empty. There were panels of switches and a few small machines, but the control room was mostly empty space.

"It's not what I expected," he said, hiding his disappointment.

Franz smiled. "When machinery is efficient you don't need a lot of it. There is no need for flashing lights and sparks of electricity. What you see here gets the job done."

Ben felt a sudden depression. He had badly needed a lift, and he didn't see it here. "If you'll forgive me for saying so, Franz, it isn't very inspiring. I suppose it is different for you—"

Gottwald answered him by throwing a switch.

Two immense screens flared into life, covering the whole front of the control room.

Ben caught his breath.

One of the screens showed the globe of the Earth far below, blue and green and necklaced with silver clouds.

The other showed the stars.

The stars were alive, so close he could almost touch them with his hand. They burned like radiant beacons in the cold sea of space. They whispered to him, called to him—

Ben knew then that the men of Earth had remembered something more than monsters and nightmares, something more than the fears and terrors that crept through the great dark night:

Not all the dreams had been nightmares.

Through all the years and all the sorrows, Man had never forgotten.

*I remember. I remember.*

*I have seen you through all the centuries of nights. I have looked up to see you, I have lifted my head to pray, I have known wonder—*

*I remember.*

Ben looked again at the sleeping Earth.

He sensed that Old Franz and his wife had drawn back into the shadows.

He stood up straight, squaring his shoulders.

Then Ben Hazard turned once more and looked out into the blazing heritage of the stars.

*I remember, I remember—*

*It has been long, but you, too, have not forgotten.*

*Wait for us.*

*We'll be back.*

THE END

# DORSAI!



BY GORDON R. DICKSON



*Part II of III. Donal had found a place  
... but he was still the odd-one, the un-  
fitting. And wherever it was he be-  
longed, it was definitely somewhere on top!*

Illustrated by van Dongen

"The boy's odd. You never know which way he'll jump."

This is the considered opinion of his family and military instructors about DONAL GRAEME, on the small world of the Dorsai—a planet the chief export of which is professional soldiers, one of whom Donal has just become with graduation from a military academy on his eighteenth birthday.

It is an opinion in which Donal concurs, but not happily. The reasons which impel him to do things are ones which he has never been successful in explaining to other people. In addition, he is troubled by deep desires and insights which he cannot explain even to himself. Militarily brilliant, he is still like a stranger passing through a town, the ways of whose people are different; and who look on him with a lack of understanding amounting to suspicion.

He has come to his majority at a time of particular unrest between the stars. It is the year 2403. Man has spread out to inhabit seven other star systems beside the Solar. The occupied planets—nearly all of them terraformed to some degree or other—are: In the Solar System, Earth and her Moon, Mars and Venus; in Alpha Centauri, Newton, and Cassida; in the system of Sirius, the planets New Earth, Freiland, and the largely useless small world of Oriente; in the system of Tau Ceti, the large, low-gravity world of Ceta; in the Procyon system the so-called Exotic Worlds

of Mara and Kultis, the Catholic planet of St. Marie, and the mining world called Coby; in E. Eridani the twin planets of Association and Harmony, ironically referred to as The Friendly Worlds, or The Friendlies; the small fisher planet of Dunnin's World in the system of Altair; and under the star, Fomalhaut, Donal's native world, known as The Dorsai.

The lifeblood of these worlds is the skill of their trained specialists—and the medium of trade between the worlds is the exchange of work contracts where a specialist in one field may be hired out in order that another specialist of a type the home world needs may be imported and employed. In the past two hundred years the inhabited planets have developed their own particular characters and special schools. Earth exports specialists in the social sciences and education. Mars, weather and agricultural experts. Venus, and her daughter technocratic worlds of Newton and Cassida, specialists in the hard sciences and their corresponding technologies. New Earth and Freiland, under their monarchial republics, export construction and legal experts, and some professional soldiers. Mara and Kultis export specialists in the medical and psychological sciences. The Friendlies export theologians in some small number, and machine-design specialists. St. Marie, Dunnin's World, and Coby export little except indentured students, whose contract rights have to be split with the world that educates them—these worlds being too poor and

young to have developed any home schools worth mentioning. Ceta exports mercantile and business experts of the highest skill. The Dorsai exports only professional soldiers—but these of such fine quality that there is always a hungry market for their contractual services.

Donal, who is the product of the best of Dorsai breeding and training—and who, in addition has some of the best of the Exotic Maran genes in his ancestry—lacks nothing of the ability of the perfect mercenary soldier. His psychological make-up, however, is complicated by powerful emotions and perceptions he himself does not understand; and by an inability of his to make the reasons for which he does things understandable to other people. The day of his eighteenth birthday he feels the pull of a vast and formless need for something that he resists without understanding. Later that night, in his first experience with liquor, he becomes drunk while at dinner with his father EACHAN KHAN GRAEME, his twin uncles, IAN and KENSIE, and his older brother, MOR. Intoxicated, he cries out to the rest of them that he will be the greatest general that ever was, that he'll show the worlds what a Dorsai can be; and he has a momentary vision of the others at the table as not older, stronger, and more experienced, but helpless as children and turning to him for protection.

Three weeks later, on the spaceship taking him to the Friendlies; where he intends to put his contract up for sale, he is suddenly moved to involve

himself with a young girl of his own age, ANEA MARLIVANA, a special product of Exotic breeding known as the SELECT of Kultis. Anea foolishly attempts to hire him to destroy the contract binding her in the service of WILLIAM, Prince and Chairman of the Board on Ceta, not knowing such destruction is a physical near-impossibility. Shocked at the involvement in such a situation of a person who represents the finest gene selections and psychological upbringing the Exotic medical science can achieve, Donal ignores her demand and sets out to make his own investigation of the situation.

He commences by boldly and falsely claiming an acquaintance between his father and another Dorsai, HENDRICK GALT, Marshal of Freiland. Galt, who sees through the fraud, is intrigued enough to say nothing; with the result that Donal is invited to a dinner party in the ship's dining room, not only with Galt, but with Anea and William—and two young men: AR DELL MONTOR, a Newtonian with a genius in the field of social dynamics, but sunk into alcoholism in an attempt to spite William, who owns his contract body and soul, and will not allow him to work; and Commandant HUGH KILLIEN, a large and somewhat flashy Freiland career officer, who is Galt's aide.

During the dinner, Donal causes William to take an interest in him. After, however, in a private session with Galt, Donal informs the marshal that he considers William an absolute devil—and also admits his own im-

posture to gain an introduction, and his intention of doing something about the Anea-William situation. Astonished and alarmed, Galt—who has taken a liking to Donal—warns him against trying anything at all with William, who is one of the dozen or so most powerful men between the stars. But Donal persists.

Later, Donal has an interview with William, alone—in which William suddenly strips off his velvet gloves of public politeness and forces Donal to reveal himself as venal and untrustworthy. After showing Donal how easily he could be prosecuted and convicted for theft of Anea's contract—which Donal has just freely given back to him—William turns suddenly pleasant again and promises to find a use for Donal after all, spying upon Anea. Bigger jobs can come later. For the present, William will find Donal a Force-Leadership in Killien's Command, as part of a demonstration field army of Freilander Troops William has under contract, and is leasing to one of the Harmony religious sects.

Leaving William, Donal is confronted by Anea. He admits to her that he offered her contract back to William. She calls him a cheat and a traitor and runs away from him.

Some weeks later, on Harmony, Donal takes part in an action under Hugh Killien. With what Donal considers insufficient forces, they move forward to take up a vacuum on the battle front, around a small enemy Harmony village whose population has been evacuated. That same eve-

ning, Donal discovers Hugh slipped away to meet Anea, who is illegally waiting for him in the empty village. Returning to his own Force, barely in time, Donal gets his men up in trees just before the dawn attack of enemy elite troops. The attack is defeated, but at a heavy cost. Hugh emerges from the Village too late to take part in the action; and Donal as senior field officer surviving, orders him arrested and tried by the mercenaries for misleading and abandoning his troops—under Article Four of the Mercenaries Code. Hugh is found guilty and Donal orders him shot on the spot.

Later, discharged from the demonstration forces, Donal faces William's wrath over the execution of Hugh Killien. William, it seems, had plans for Killien. In the end, however, William says he may still find a use for Donal because of the publicity Donal has garnered, following the action. Donal then informs him that he has signed on with Galt for Freiland. Leaving, Donal feels William's cold enmity and suddenly aroused suspicion following him. He pauses in leaving the hotel where William's entourage is staying, only long enough to try to speak to Anea.

Granted a brief interview, he attempts to make Anea understand that Killien was William's tool; and that the only way to protect Anea from the disaster she was courting in her attempts to work against William, was to remove Killien. He can, however, as yet give no satisfactory explanation for William's actions, or

his own success in frustrating them. Anea believes only that Donal had Killien legally murdered to satisfy his own self-seeking purposes—and forces Donal to leave her unconvinced.

Stunned, and unable to understand how someone like Anea, of all people, could be so obtuse; and torn by the self-doubt and loneliness that has always been his lot, Donal goes off to take service under Galt in the forces of Freiland.

Some months later . . .

## PART 2

### AIDE-DE-CAMP



HEY met in the office of Marshal Galt, in his Freiland home; and the enormous expanse of floor and the high vaulted ceiling dwarfed them as they stood three men around a bare desk.

"Captain Lladrow, this is my Aide, Commandant Donal Graeme," said Galt, brusquely. "Donal, this is Russ Lladrow, Patrol Chief of my Blue Patrol."

"Honored, sir," said Donal, inclining his head.

"Pleased to meet you, Graeme," answered Lladrow. He was a fairly short, compact man in his early forties, very dark of skin and eye.

"You'll trust Donal with all staff information," said Galt. "Now, what's your reconnaissance and intelligence picture?"

DORSAL!

"There's no doubt about it, they're planning an expeditionary landing on Oriente." Lladrow turned toward the desk and pressed buttons on the map keyboard. The top of the desk cleared to transparency and they looked through at a non-scale map of the Sirian system. "Here we are," he said, stabbing his finger at the world of Freiland, "Here's New Earth"—his finger moved to Freiland's sister planet—"and here's Oriente"—his finger skipped to a smaller world inward toward the sun—"in the positions they'll be in, relative to one another twelve days from now. You see, we'll have the sun between the two of us and also almost between each of our worlds and Oriente. They couldn't have picked a more favorable tactical position."

Galt grunted, examining the map. Donal was watching Lladrow with quiet curiosity. The man's accent betrayed him for a New Earthman, but here he was high up on the Staff of Freiland's fighting forces. Of course, the two Sirian worlds were natural allies, being on the same side as Old Earth against the Mars-Venus-Newton-Cassida group; but simply because they were so close, there was a natural rivalry in some things, and a career officer from one of them usually did best on his home world.

"Don't like it," said Galt, finally. "It's a fool stunt from what I can see. The men they land will have to wear respirators; and what the devil do they expect to do with their beach-head when they establish it? Oriente's too close to the sun for terra-

forming, or we would have done it from here long ago."

"It's possible," said Lludrow, calmly, "they could intend to mount an offensive from there against our two planets here."

"No, no," Galt's voice was harsh and almost irritable. His heavy face loomed above the map. "That's as wild a notion as terraforming Oriente. They couldn't keep a base there supplied, let alone using it to attack two large planets with fully established population and industry. Besides, you don't conquer civilized worlds. That's a maxim."

"Maxims can become worn out, though," put in Donal.

"What?" demanded Galt, looking up. "Oh—Donal. Don't interrupt us now. From the looks of it," he went on to Lludrow, "it strikes me as nothing so much as a live exercise—you know what I mean."

Lludrow nodded—as did Donal unconsciously. Live exercises were something that no planetary Chief of Staff admitted to, but every military man recognized. They were actual small battles provoked with a handy enemy either for the purpose of putting a final edge on troops in training, or to keep that edge on troops that had been too long on a standby basis. Galt, almost alone among the Planetary Commanders of his time, was firmly set against this action, not only in theory, but in practice. He believed it more honest to hire his troops out, as in the recent situation on Harmony, when they showed signs of going stale. Donal privately agreed with

him; although there was always the danger that when you hired troops out, they lost the sense of belonging to you, in particular, and were sometimes spoiled through mismanagement.

"What do you think?" Galt was asking his Patrol chief.

"I don't know, sir," Lludrow answered. "It seems the only sensible interpretation."

"The thing," interrupted Donal, again, "would be to go over some of the nonsensible interpretations as well, to see if one of them doesn't constitute a possible danger. And from that—"

"Donal," broke in Galt, dryly, "you are my aide, not my Battle Op."

"Still—" Donal was persisting, when the marshal cut him off in a tone of definite command.

"That will be all!"

"Yes, sir," said Donal, subsiding.

"Then," said Galt, turning back to Lludrow, "we'll regard this as a heaven-sent opportunity to cut an arm or two off the fighting strength of the Newton-Cassidan fleet and field force. Go back to your Patrol. I'll send orders."

Lludrow inclined his head and was just about to turn and go when there was an interruption—the faint swish of air from one of the big office doors sliding back, and the tap of feminine heels approaching over the polished floor. They turned to see a tall, dazzlingly beautiful woman with red hair coming at them across the office.

"Elvine!" said Galt.

"Not interrupting anything, am

I?" she called, even before she came up to them. "Didn't know you had a visitor."

"Russ," said Galt. "You know my sister-in-law's daughter, The Elvine Rhy? Elvine, this is my Blue Patrol Chief, Russ Lludrow."

"Very deeply honored," said Lludrow, bowing.

"Oh, we've met—or at least I've seen you before." She gave him her hand briefly, then turned to Donal. "Donal, come fishing with me."

"I'm sorry," said Donal. "I'm on duty."

"No, no," Galt waved him off with a large hand. "There's nothing more at the moment. Run along, if you want."

"At your service, then," said Donal.

"But what a cold acceptance!" she turned on Lludrow. "I'm sure the Patrol chief wouldn't have hesitated like that."

Lludrow bowed again.

"I'd never hesitate where the Rhy was concerned."

"There!" she said. "There's your model, Donal. You should practice manners—and speeches like that."

"If you suggest it," said Donal.

"Oh, Donal." She tossed her head. "You're hopeless. But come along, anyway." She turned and left; and he followed her.

They crossed the great central hall and emerged into the garden terrace above the blue-green bay of the shallow, inland sea that touched the edges of Galt's home. He expected her to

continue down to the docks, but instead she whirled about in a small arbor, and stood facing him.

"Why do you treat me like this?" she threw at him. "Why?"

"Treat you?" He looked down at her.

"Oh, you wooden man!" Her lips skinned back over her perfect teeth. "What're you afraid of—that I'll eat you up?"

"Wouldn't you?" he asked her quite seriously—and she checked at his answer.

"Come on. Let's go fishing!" she cried, and whirled about and ran down toward the dock.

So, they went fishing. But even slicing through the water in pursuit of a twisting fish at sixty fathoms depth, Donal's mind was not on the sport. He let the small jet unit on his shoulders push him whither the chase led him; and, in the privacy of his helmet, condemned himself darkly for his own ignorance. For it was this crime of ignorance which he abhorred above all else—in this case his ignorance of the ways of women—that had led him to believe he could allow himself the luxury of a casual and friendly acquaintanceship with a woman who wanted him badly, but whom he, himself, did not want at all.

She had been living here, in this household, when Galt had brought him here as a personal aide. She was, by some intricate convolution of Freiland inheritance laws, the marshal's responsibility; in spite of the distance of their relationships and the fact that

her own mother and some other relatives were still living. She was some five years older than Donal, although in her wild energy and violence of emotion, this difference was lost. He had found her excitements interesting, at first; and her company a balm to what—though he would not admit it to himself in so many words—was a recently bruised and very tender portion of his ego. That had been at first.

"You know," she had said to him in one of her peculiar flashes of directness. "Anybody would want me."

"Anybody would," he admitted, considering her beauty. It was not until later that he discovered, to his dismay, that he had accepted an invitation he had not even suspected was there.

For four months now, he had been established at the marshal's estate, learning some of the elements of Freilander Staff Control; and learning also, to his increasing dismay, some of the intricacies of a woman's mind. And, in addition to it all, he found himself puzzled as to why he did not want her. Certainly he liked Elvine Rhy. Her company was enjoyable, her attractiveness was undeniable, and a certain brightness and hunger in her personality matched similar traits in his own. Yet, he did not want her. No, not the least bit, not at all.

They gave up their fishing after several hours. Elvine had caught four, averaging a good seven or eight kilograms. He had caught none.

"Elvine—" he began, as he went up the steps of the terrace with her.

But, before he could finish his carefully thought out speech, an annunciator hidden in a rosebush chimed softly.

"Commandant," said the rosebush, gently, "the doorbot announces a Senior Groupman Tage Lee to see you. Do you wish to see him?"

"Lee—" murmured Donal. He raised his voice. "From Harmony?"

"He says he is from Harmony," answered the rosebush.

"I'll see him," said Donal, striding quickly toward the house. He heard the sound of running feet behind him and Elvine caught at his arm.

"Donal—" she said.

"This'll just take a minute," he answered. "I'll see you in the library in a few minutes."

"All right—" She let go and fell behind him. He went in and to the entrance hall.

Lee, the same Lee who had commanded his Third Group, was waiting for him.

"Well, Groupman," said Donal, shaking hands. "What brings you here?"

"You do, sir," said Lee. He looked Donal in the eye with something of the challenge Donal had marked the first time Donal had seen him. "Could you use a personal orderly?"

Donal considered him.

"Why?"

"I've been carrying my contract around since they let us all go after that business with Killien," said Lee. "If you want to know, I've been on a

bat. That's my cross. Out of uniform I'm an alcoholic. In uniform, it's better, but sooner or later I get into a hassle with somebody. I've been putting off signing up again because I couldn't make up my mind what I wanted. Finally, it came to me. I wanted to work for you."

"You look sober enough now," said Donal.

"I can do anything for a few days —even stop drinking. If I'd come up here with the shakes, you'd never have taken me."

Donal nodded.

"I'm not expensive," said Lee. "Take a look at my contract. If you can't afford me yourself, I'll sign up as a line soldier and you pull strings to get me assigned to you. I don't drink if I've got something to do; and I can make myself useful. Look here—"

He extended his hand in a friendly manner, as if to shake hands again, and suddenly there was a knife in it.

"That's a back-alley, hired killer trick," said Donal. "Do you think it'd work with me?"

"With you—no." Lee made the knife vanish again. "That's why I want to work for you. I'm a funny character, commandant. I need something to hang to. I need it the way ordinary people need food and drink and home and friends. It's all there in the psychological index number on my contract, if you want to copy it down and check on me."

"I'll take your word for it, for now," said Donal. "What is wrong with you?"

"I'm borderline psycho," Lee answered, his lean face expressionless. "Not correctable. I was born with a deficiency. What they tell me is, I've got no sense of right or wrong; and I can't manage just by abstract rules. The way the doctors put it when I first got my contract, I need my own, personal, living god in front of me all the time. You take me on and tell me to cut the throat of all the kids under five I meet, and that's fine. Tell me to cut my own throat —the same thing. Everything's all right, then."

"You don't make yourself sound very attractive."

"I'm telling you the truth. I can't tell *you* anything else. I'm like a bayonet that's been going around all my life looking for a rifle to fit on to; and now I've found it. So, don't trust me. Take me on probation for five years, ten years—the rest of my life. But don't shut me out." Lee half-turned and pointed one bony finger at the door behind him. "Out there is hell for me, commandant. Anything inside here is heaven."

"I don't know," said Donal, slowly. "I don't know that I'd want the responsibility."

"No responsibility." Lee's eyes were shining; and it struck home to Donal suddenly that the man was terrified: terrified of being refused. "Just tell me. Try me, now. Tell me to get down and bark like a dog. Tell me to cut my left hand off at the wrist. As soon as they've grown me a new one I'll be back to do whatever you want me to do." The knife was



suddenly back in his hand. "Want to see?"

"Put that away!" snapped Donal. The knife disappeared. "All right, I'll buy your contract personally. My suite of rooms are third door to the right, the head of the stairs. Go up there and wait for me."

Lee nodded. He offered no word of thanks. He only turned and went.

Donal shook himself mentally as if the emotional charge that had crackled in the air about him the last few seconds was a thing of physical mass draped heavily upon his shoulders. He turned and went to the library.

Elvine was standing looking out the great expanse of open wall at the ocean, as he came in. She turned quickly, at the sound of his steps and came to meet him.

"What was it?" she asked.

"One of my soldiers from the Harmony business," he said. "I've taken him on as my personal orderly." He looked down at her. "Ev—"

Instantly, she drew a little away from him. She looked out the wall, one hand falling down to play with a silver half-statue that sat on a low table beside her.

"Yes?" she said.

He found it very hard to get the words out.

"Ev, you know I've been around here a long time," he said.

"A long time?" at that, she turned to face him with a slight look of startlement. "Four months? It seems like hours, only."

"Perhaps," he said, doggedly. "But

it *has* been a long time. So perhaps it's just as well I'm leaving."

"Leaving?" Her eyes shot wide; hazel eyes, staring at him. "Who said you were leaving?"

"I have to, of course," he said. "But I thought I ought to clear something up before I go. I've liked you a great deal, Ev—"

But she was too quick for him.

"Liked me?" she cried. "I should think you should! Why, I haven't hardly had a minute to myself for entertaining you. I swear I hardly know what it looks like any more outside of this place! Liked me! You certainly ought to like me after the way I've put myself out for you!"

He gazed at her furious features for a long moment and then he smiled ruefully.

"You're quite right," he said. "I've put you to a great deal of trouble. Pardon me for being so dense as not to notice it." He bent his head to her. "I'll be going now."

He turned and walked away. But he had hardly taken a dozen steps across the sunlit library before she called his name.

"Donal!"

He turned and saw her staring after him, her face stiff, her fists clenched at her side.

"Donal, you . . . you can't go," she said, tightly.

"I beg your pardon?" He stared at her.

"You can't go," she repeated. "Your duty is here. You're assigned here."

"No." He shook his head. "You

don't understand, Ev. This business of Oriente's come up. I'm going to ask the marshal to assign me to one of the ships."

"You can't." Her voice was brittle. "He isn't here. He's gone down to the Spaceyard."

"Well, then, I'll go there and ask him."

"You can't. I've already asked him to leave you here. He promised."

"You *what*?" The words exploded from his lips in a tone more suited to the field than to this quiet mansion.

"I asked him to leave you here."

He turned and stalked away from her.

"Donal!" He heard her voice crying despairingly after him, but there was nothing she, or anyone in that house could have done, to stop him then.

He found Galt examining the new experimental model of a two-man anti-personnel craft. The older man looked up in surprise as Donal came up.

"What is it?" he asked.

"Could I see you alone for a minute, sir?" said Donal. "A private and urgent matter."

Galt shot him a keen glance, but motioned aside with his head and they stepped over into the privacy of a tool control booth.

"What is it?" asked Galt.

"Sir," said Donal. "I understand Elvine asked you if I couldn't continue to be assigned to your household during the upcoming business we talked about with Patrol Chief Ludrow earlier today."

"That's right. She did."

"I did not know of it," said Donal, meeting the older man's eyes. "It was not my wish."

"Not your wish?"

"No, sir."

"Oh," said Galt. He drew a long breath and rubbed his chin with one thick hand. Turning his head aside, he gazed out through the screen of the control booth at the experimental ship. "I see," he said, "I didn't realize."

"No reason why you should." Donal felt a sudden twist of emotion inside him at the expression on the older man's face. "I should have spoken to you before, sir."

"No, no," Galt brushed the matter aside with a wave of his hand. "The responsibility's mine. I've never had children. No experience. She has to get herself settled in life one of these days; and . . . well, I have a high opinion of you, Donal."

"You've been too kind to me already, sir," Donal said miserably.

"No, no . . . well, mistakes will happen. I'll see you have a place with the combat forces right away, of course."

"Thank you," said Donal.

"Don't thank me, boy." Abruptly, Galt looked old. "I should have remembered. You're a Dorsai."

## STAFF LIAISON

"Welcome aboard," said a pleasant-faced Junior Captain, as Donal strode through the gas barrier of the inner lock. The Junior Captain was

in his early twenties, a black-haired, square-faced young man who looked as if he had gone in much for athletics. "I'm J. C. Allmin Clay Andresen."

"Donal Graeme." They saluted each other. Then they shook hands.

"Had any ship experience?" asked Andresen.

"Eighteen months of summer training cruises in the Dorsai," answered Donal. "Command and armament—no technical posts."

"Command and armament," said Andresen, "are plenty good enough on a Class 4J ship. Particularly Command: You'll be senior officer after me—if anything happens." He made the little ritual gesture, reaching out to touch a close, white, carbon-plastic wall beside him. "Not that I'm suggesting you take over in such a case. My First can handle things all right. But you may be able to give him a hand, if it should happen."

"Be honored," said Donal.

"Care to look over the ship?"

"I'm looking forward to it."

"Right. Step into the lounge, then." Andresen led the way across the small reception room, and through a sliding bulkhead to a corridor that curved off ahead of them to right and left. They went through another door in the wall of the corridor directly in front of them, down a small passage, and emerged through a final door into a large, pleasantly decorated, circular room.

"Lounge," said Andresen. "Control center's right under our feet; reverse gravity." He pressed a stud on

the wall and a section of the floor slid back. "You'll have to flip," he warned, and did a head-first dive into the hole.

Donal, who knew what to expect, followed the J. C.'s example. The momentum of his dive shot him through and into another circular chamber of the same size as the lounge, in which everything would have been upside down and nailed to the ceiling, except for the small fact that here the gravity was reversed; and what had been down, was up, and up was down instead.

"Here," said Andresen, as Donal landed lightly on the floor at one side of the opening, "is our Control Eye. As you probably saw when you were moving in to come aboard, the Class 4J is a ball-and-hammer ship." He pressed several studs and in the large globe floating in the center of the floor, that which he had referred to as the Control Eye, a view formed of their craft, as seen from some little distance outside the ship. Half-framed against the star-pricked backdrop of space, and with just a sliver of the curved edge of Freiland showing at the edge of the scene, she floated. A sphere thirty meters in diameter, connected by two slim shafts a hundred meters each in length to a rhomboid-shape that was the ship's thrust unit, some five meters in diameter at its thickest and looking like a large child's spinning top, pivoted on two wires that clamped it at the middle. This was the "hammer." The ship, proper, was the "ball."

"No phase-shift equipment?" asked

ed Donal. He was thinking of the traditional cylinder shape of the big ships that moved between the stars.

"Don't fool yourself," answered Andresen. "The grid's there. We just hope the enemy doesn't see it, or doesn't hit it. We can't protect it, so we try to make it invisible." His finger stabbed out to indicate the apparently bare shafts. "There's a covering grid running the full length of the ship, from thrust to nose. Painted black."

Donal nodded thoughtfully.

"Too bad a polarizer won't work in the absence of atmosphere," he said.

"You can say that," agreed Andresen. He flicked off the Eye. "Let's look around the rest of the ship by hand."

He led out a door and down a passage similar to the one by which they had entered the lounge. They came out into a corridor that was the duplicate of the curving one they had passed in the other half of the ship.

"Crew's quarters, mess hall, on the other one," explained Andresen. "Officer's quarters, storage and supplies, repair section, on this one." He pushed open a door in the corridor wall opposite them and they stepped into a section roughly the size of a small hotel room, bounded on its farther side by the curving outer shell of the ship, proper. The shell in this section was, at the moment, on transparent; and the complicated "dentist's chair" facing the

bank of controls at the foot of the transparency was occupied; although the figure in it was dressed in coveralls only.

"My First," said Andresen. The figure looked up over the headrest of the chair. It was a woman in her early forties.

"Hi, All," she said. "Just checking the override." Andresen made a wry grimace at Donal.

"Antipersonnel weapons," he explained. "Nobody likes to shoot the poor helpless characters out of the sky as they fall in for an assault—so it's an officer's job. I usually take it over myself if I'm not tied up with something else at the moment. Staff Liaison Donal Graeme—First Officer Coa Benn."

Donal and she shook hands.

"Well, shall we get on?" asked Andresen. They toured the rest of the ship and ended up before the door of Donal's stateroom in Officer's Country.

"Sorry," said Andresen. "But we're short of bunk space. Full complement under battle conditions. So we had to put your orderly in with you. If you've no objection—"

"Not at all," said Donal.

"Good," Andresen looked relieved. "That's why I like the Dorsai. They're so sensible." He clapped Donal on the shoulder, and went hurriedly off back to his duties of getting his ship and crew ready for action.

Entering his stateroom, Donal found Lee had already set up both

their gear, including a harness hammock for himself to supplement the single bunk that would be Donal's.

"All set?" asked Donal.

"All set," answered Lee. He still chronically forgot the "sir"; but Donal, having already had some experience with the fanatic literal-mindedness with which the man carried out any command given him, had refrained from making an issue of it. "You settle my contract, yet?"

"I haven't had time," said Donal. "It can't be done in a day. You knew that, didn't you?"

"No," said Lee. "All I ever did was hand it over. And then, later on when I was through my term of service they gave it back to me; and the money I had coming."

"Well, it usually takes a number of weeks or months," Donal said. He explained what it had never occurred to him that anyone should fail to know, that the contracts are owned entirely by the individual's home community or world, and that a contract agreement was a matter for settlement between the employer and the employee's home government. The object was not to provide the individual so much with a job and a living wage, as to provide the home government with favorable monetary and "contractual" balances which would enable them to hire, in their turn, the trained specialists *they* needed. In the case of Lee's contract, since Donal was a private employer and had money to offer, but no contractual credits, the matter of Lee's employment had to be cleared with the Dor-

sai authorities, as well as the authorities on Coby, where Lee came from.

"That's more of a formality than anything else, though," Donal assured him. "I'm allowed an orderly, since I've been commandant rank. And the intent to hire's been registered. That means your home government won't draft you for any special service some place else."

Lee nodded, which was almost his utmost expression of relief.

"... Signal!" chimed the annunciator in the stateroom wall by the door, suddenly. "Signal for Staff Liaison Graeme. Report to Flagship, immediately. Staff Liaison Graeme report to Flagship immediately."

Donal cautioned Lee to keep from under the feet of the ship's regular crew; and left.

The Flagship of the Battle made up by the Red and Green Patrols of the Freilander Space Force was, like the Class 4J Donal had just left, already in temporary loose orbit around Oriente. It took him some forty minutes to reach here; and when he entered her lock reception room and gave his name and rank, he was assigned a guide who took him to a briefing room in the ship's interior.

The room was filled by some twenty-odd other Staff Liaisons.

They ranged in rank from Warrant Couriers to a Sub-Patrol Chief in his fifties. They were already seated facing a platform; and, as Donal entered—he was, apparently, the last to arrive—a Senior Captain of flag rank

entered, followed closely by Blue Patrol Chief Lludrow.

"All right, gentlemen," said the Senior Captain; and the room came to order. "Here's the situation." He waved a hand and the wall behind him dissolved to reveal an artist's extrapolation of the coming battle. Oriente floated in black space, surrounded by a number of ships in various patterns. The size of the ships had been grossly exaggerated in order to make them visible in comparison with the planet which was roughly two-thirds the diameter of Mars. The largest of these, the Patrol Class—long cylindrical interstellar warships—were in varying orbit eighty to five hundred kilometers above the planet's surface, so that the integration of their pattern enclosed Oriente in web of shifting movement. A cloud of smaller craft, C4Js, A(sub-class)9s, courier ships, firing platforms, and individual and two-man gnat class boats, held position out beyond and planetward of them, right down into the atmosphere.

"We think," said the Senior Captain, "that the enemy, at effective speed and already braking, will come into phase about here—" a cloud of assault ships winked into existence abruptly, a half million kilometers sunward of Oriente, and in the sun's eye. They fell rapidly toward the planet, swelling visibly in size. As they approached, they swung into a circular landing orbit about the planet. The smaller craft closed in, and the two fleets came together in a myriad of patterns whose individual

motions the eye could not follow all at once. Then the attacking fleet emerged below the mass of the defenders, spewing a sudden cloud of tiny objects that were the assault troops. These drifted down, attacked by the smaller craft, while the majority of the assault ships from Newton and Cassida began to disappear like blown-out candles as they sought safety in a phase shift that would place them light-years from the scene of battle.

To Donal's fine-trained professional mind it was both beautifully thrilling—and completely false. No battle since time began had ever gone off with such ballet grace and balance and none ever would. This was only an imaginative guess at how the battle would take place, and it had no place in it for the inevitable issuance of wrong orders, the individual hesitations, the underestimation of an opponent, the navigational errors that resulted in collisions, or firing upon a brother ship. These all remained for the actual event, like harpies roosting upon the yet-unblasted limbs of a tree, as dawn steals like some gray thief onto the field where men are going to fight. In the coming action off Oriente there would be good actions and bad, wise decisions, and stupid ones—and none of them would matter. Only their total at the end of the day.

"... Well, gentlemen," the Senior Captain was saying, "there you have it as Staff sees it. Your job—yours personally, as Staff Liaisons—is to observe. We want to know anything

you can see, anything you can discover, anything you can, or think you can, deduce. And of course"—he hesitated, with a wry smile—"there's nothing we'd appreciate quite so much as a prisoner."

There was a ripple of general laughter at this, as all men there knew the fantastic odds against being able to scoop up a man from an already broken-open enemy ship under the velocities and other conditions of a space battle—and find him still alive, even if you succeeded.

"That's all," said the Senior Captain. The Staff Liaisons rose and began to crowd out the door.

"Just a minute, Graeme!"

Donal turned. The voice was the voice of Lludrow. The Patrol Chief had come down from the platform and was approaching him. Donal turned back to meet him.

"I'd like to speak to you for a moment," said Lludrow. "Wait until the others are out of the room." They stood together in silence until the last of the Staff Liaisons had left, and the Senior Captain had disappeared.

"Yes, sir?" said Donal.

"I'm interested in something you said—or maybe were about to say the other day—when I met you at Marshal Galt's in the process of assessing this Oriente business. You said something that seemed to imply doubt about the conclusions we came to. But I never did hear what it was you had in mind. Care to tell me now?"

"Why, nothing, sir," said Donal.

"Staff and the marshal undoubtedly know what they're doing."

"It isn't possible, then, you saw something in the situation that we didn't?" Donal hesitated.

"No, sir. I don't know any more about enemy intentions and plans than the rest of you. Only—" Donal looked down into the dark face below his, wavering on the verge of speaking his mind. Since the affair with Anea he had been careful to keep his flights of mental perception to himself. "Possibly I'm just suspicious, sir."

"So are all of us, man!" said Lludrow, with a hint of impatience. "What about it? In our shoes what would *you* be doing?"

"In your shoes," said Donal, throwing discretion to the winds, "I'd attack Newton."

Lludrow's jaw fell. He stared at Donal.

"By heaven," he said, after a moment. "You're not shy about expedients, are you? Don't you know a civilized world can't be conquered?"

Donal allowed himself the luxury of a small sigh. He made an effort to explain himself, once again, in terms others could understand.

"I remember the marshal saying that," he said. "I'm not so sanguine, myself. In fact, that's a particular maxim I'd like to try to disprove some day. However—that's not what I meant. I didn't mean to suggest we attempt to *take* Newton; but that we *attack* it. I suspect the Newtonians are as maxim-ridden as ourselves. Seeing us try the impossible, they're

very like to conclude we've suddenly discovered some way to make it possible. From their reactions to such a conclusion we might learn a lot—including about the Oriente affair."

Lludrow's look of amazement was tightening into a frown.

"Any force attacking Newton would suffer fantastic losses," he began.

"Only if they intended to carry the attack through," interrupted Donal, eagerly. "It could be a feint—nothing more than that. The point wouldn't be to do real damage, but to upset the thinking of the enemy strategy by introducing an unexpected factor."

"Still," said Lludrow, "to make their feint effective, the attacking force would have to run the risk of being wiped out."

"Give me a dozen ships—" Donal was beginning; when Lludrow started and blinked like a man waking up from a dream.

"Give you—" he said; and smiled. "No, no, commandant, we were speaking theoretically. Staff would never agree to such a wild, unplanned gamble; and I've no authority to order it on my own. And if I did—how could I justify giving command of such a force to a young man with only field experience, who's never held command in a ship in his life?" He shook his head. "No, Graeme—but I will admit your idea's interesting. And I wish one of us at least had thought of it."

"Would it hurt to mention it—"

"It wouldn't do any good—to argue with a plan Staff has already

had in operation for over a week, now." He was smiling broadly. "In fact, my reputation would find itself cut rather severely. But it was a good idea, Graeme. You've got the makings of a strategist. I'll mention the fact in my report to the marshal."

"Thank you, sir," said Donal.

"Back to your ship, then," said Lladrow.

"Good-bye, sir."

Donal saluted and left. Behind him, Lladrow frowned for just a moment more over what had just been said—before he turned his mind to other things.

## ACTING CAPTAIN

Space battles, mused Donal, are said to be held only by mutual consent. It was one of those maxims he distrusted; and which he had privately determined to disprove whenever he should get the chance. However—as he stood now by the screen of the Control Eye in the main control room of the C4J, watching the enemy ships appearing to swell with the speed of their approach—he was forced to admit that in this instance, it was true. Or true at least to the extent that mutual consent is involved when you attack an enemy point that you know that enemy will defend.

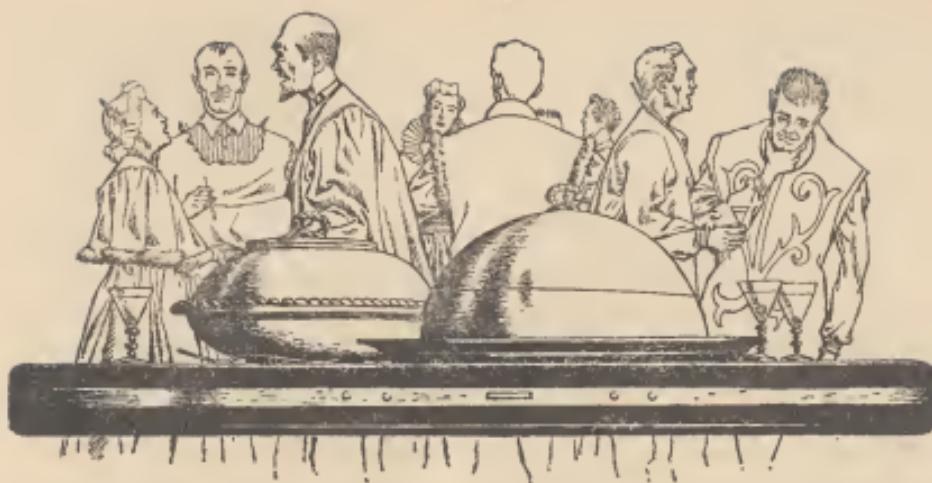
But what if he should not defend it after all? What if he should do the entirely unexpected—

"Contact in sixty seconds. Contact in sixty seconds!" announced the speaker over his head.

"Fasten all," said Andresen, calmly into the talker before him. He sat, with his First and Second Officers duplicating him on either side, in a "dentist's chair" across the room—"seeing" the situation not in actual images as Donal was doing, but from the readings of his instruments. And his knowledge was therefore the more complete one. Cumbersome in his survival battle suit, Donal climbed slowly into the similar chair that had been rigged for him before the Eye, and connected himself to the chair. In case the ship should be broken apart, he and it would remain together as long as possible. With luck, the two of them would be able to make it to a survival ship in orbit around Oriente in a forty or fifty hours—if none of some dozens of factors intervened.

He had time to settle himself before the Eye before contact was made. In those last few seconds, he glanced around him; finding it a little wonderful in spite of all he knew, that this white and quiet room, undisturbed by the slightest tremor, should be perched on the brink of savage combat and its own quite possible destruction. Then there was no more time for thinking. Contact with the enemy had been made and he had to keep his eyes on the scene.

Orders had been to harry the enemy, rather than close with him. Estimates had been twenty per cent casualties for the enemy, five per cent for the defending forces. But such figures, without meaning to be, are misleading. To the man in the battle,



twenty per cent, or even five per cent casualties do not mean that he will be twenty per cent or five per cent wounded. Nor, in a space battle, does it mean that one man out of five, or one man out of twenty will be a casualty. It means one *ship* out of five, or one *ship* out of twenty—and every living soul aboard her; for, in space, one hundred per cent casualties mean ninety-eight per cent dead.

There were three lines of defense. The first were the light craft that were meant to slow down the oncoming ships so that the larger, more ponderous craft, could try to match velocities well enough to get to work with heavy weapons. Then there were the large craft themselves in their present orbits. Lastly, there were the second line of smaller craft that were essentially antipersonnel, as the attackers dropped their space-suited assault troops. Donal in a C4J was in the first line.

There was no warning. There was

no full moment of battle. At the last second before contact, the gun crews of the C4J had opened fire. Then—  
It was all over.

Donal blinked and opened his eyes, trying to remember what had happened. He was never to remember. The room in which he lay, fastened to his chair, had been split as if by a giant hatchet. Through the badly-lit gap, he could see a portion of an officer's stateroom. A red, self-contained flare was burning somewhere luridly overhead, a signal that the control room was without air. The Control Eye was slightly askew, but still operating. Through the transparency of his helmet, Donal could see the dwindling lights that marked the enemy's departure on toward Oriente. He struggled upright in his chair and turned his head toward the Control panel.

Two were quite dead. Whatever had split the room open had touched them, too. The Third Officer was

dead, Andresen was undeniably dead. Coa Benn still lived, but from the feeble movements she was making in the chair, she was badly hurt. And there was nothing anyone could do for her now that they were without air and all prisoners in their suits.

Donal's soldier-trained body began to react before his mind had quite caught up to it. He found himself breaking loose the fastenings that connected him to his chair. Unsteadily, he staggered across the room, pushed the lolling head of Andresen out of the way, and thumbed the intership button.

"C4J One-twenty-nine," he said. "C4J one-twenty-nine—" he continued to repeat the calabistic numbers until the screen before him lit up with a helmeted face as bloodless as that of the dead man in the chair underneath him.

"KL," said the face. "A-twenty-three?" Which was code for: "Can you still navigate?"

Donal looked over the panel. For a wonder, it had been touched by what had split the room—but barely. Its instruments were all reading.

"A-twenty-nine," he replied affirmatively.

"M-Forty," said the other, and signed off. Donal let the intership button slip from beneath his finger. M-Forty was—*Proceed as ordered.*

Proceed as ordered, for the C4J One-twenty-nine, the ship Donal was in, meant—get in close to Oriente and pick off as many assault troops as you can. Donal set about the unhappy

business of removing his dead and dying from their control chairs.

Coa, he noted, as he removed her, more gently than the others, seemed dazed and unknowing. There were no broken bones about her, but she appeared to have been pinched, or crushed on one side by just a touch of what had killed the others. Her suit was tight and intact. He thought she might make it, after all.

Seating himself in the captain's chair, he called the gun stations and other crew posts.

"Report," he ordered.

Gun stations One and Five through Eight answered.

"We're going in planetward," he said. "All able men abandon the weapon stations for now and form a working crew to seal ship and pump some air back in here. Those not sealed off, assemble in lounge. Senior surviving crewman to take charge."

There was a slight pause. Then a voice spoke back to him.

"Gun Maintenanceman Ordovya," it said. "I seem to be surviving Senior, sir. Is this the captain?"

"Staff Liaison Graeme, Acting Captain. Your officers are dead. As ranking man here, I've taken command. You have your orders, Maintenanceman."

"Yes, sir." The voice signed off.

Donal set himself about the task of remembering his ship training. He got the C4J underway toward Oriente and checked all instruments. After a while, the flare went out abruptly overhead and a slow, hissing noise

registered on his eardrums—at first faintly, then scaling rapidly up in volume and tone to a shriek. His suit lost some of its drum-tightness.

A few moments later, a hand tapped him on his shoulder. He turned around to look at a blond-headed crewman with his helmet tilted back.

"Ship tight, sir," said the crewman. "I'm Ordovya."

Donal loosened his own helmet and flipped it back, inhaling the room air gratefully.

"See to the First Officer," he ordered. "Do we have anything in the way of a medic aboard?"

"No live medic, sir. We're too small to rate one. Freeze unit, though."

"Freeze her, then. And get the men back to their posts. We'll be on top of the action again in another twenty minutes."

Ordovya went off. Donal sat at his controls, taking the C4J in cautiously and with the greatest possible margins of safety. In principle, he knew how to operate the craft he was seated in; but no one knew better than he what a far cry he was from being an experienced pilot and captain. He could handle this craft the way someone who has taken half a dozen riding lessons can handle a horse—that is, he knew what to do, but he did none of it instinctively. Where Andresen had taken in the readings of all his instruments at a glance and reacted immediately, Donal concentrated on the half dozen main telltales and debated with himself before acting.

So it was, that they came late to the action on the edges of Oriente's atmosphere; but not so late that the assault troops were already safely down out of range. Donal searched the panel for the override button on the antipersonnel guns and found it.

"Override on the spray guns," he announced into the mike before him. He looked at the instruments, but he saw in his imagination the dark and tumbling, spacesuited bodies of the assault troops, and he thought of the several million, tiny slivers of carbon steel that would go sleeting among them at the touch of his finger. There was a slight pause before answering; and then the voice of Ordovya came back.

"Sir . . . if you like, the gunmen say they're used to handling the weapons—"

"Maintenanceman!" snapped Donal. "You heard the order. Override!"

"Override, sir."

Donal looked at his scope. The computer had his targets in the gun-sights. He pressed the button, and held it down.

Two hours later, the C4J, then in standby orbit, was ordered to return to rendezvous and its captain to report to his Sub-Patrol chief. At the same time came a signal for all Staff Liaisons to report to the flagship; and one for Staff Liaison Donal Graeme to report personally to Blue Patrol Chief Lludrow. Considering the three commands, Donal called Ordovya on the ship's phone and directed him to take care of the first errand. He him-

self, he decided, could take care of the other two, which might—or might not—be connected.

Arriving at the flagship, he explained his situation to the Reception Officer, who made a signal both to the Staff Liaison people and to the Blue Patrol chief.

"You're to go directly to Lladrow," he informed Donal; and assigned him a guide.

Donal found Lladrow in a private office on the flagship that was not much bigger than Donal's stateroom in the C4J.

"Good!" said Lladrow, getting up from behind a desk as Donal came in and coming briskly around it. He waited until the guide had left, and then he put a dark hand on Donal's arm.

"How'd your ship come through?" he asked.

"Navigating," said Donal. "There was a direct hit on the control room though. All officers casualties."

"All officers?" Lladrow peered sharply at him. "And you?"

"I took command, of course. There was nothing left, though, but antipersonnel mop-up."

"Doesn't matter," said Lladrow. "You were Acting Captain for part of the action?"

"Yes."

"Fine. That's better than I hoped for. Now," said Lladrow, "tell me something. Do you feel like sticking your neck out?"

"For any cause I can approve of, certainly," answered Donal. He con-

sidered the smaller, rather ugly man; and found himself suddenly liking the Blue Patrol chief. Directness like this had been a rare experience for him, since he had left the Dorsai.

"All right. If you agree, we'll both stick our necks out." Lladrow looked at the door of the office, but it was firmly closed. "I'm going to violate top security and enlist you in an action contrary to Staff orders, if you don't mind."

"Top security?" echoed Donal, feeling a sudden coolness at the back of his neck.

"Yes. We've discovered what was behind this Newton-Cassida landing on Oriente . . . you know Oriente?"

"I've studied it, of course," said Donal. "At school—and recently when I signed with Freiland. Temperatures up to seventy-eight degrees centigrade, rock, desert, and a sort of native vine and cactus jungle. No large bodies of water worth mentioning and too much carbon dioxide in the atmosphere."

"Right. Well," said Lladrow, "the important point is, it's big enough to hide in. They're down there now and we can't root them out in a hurry—and not at all unless we go down there after them. We thought they were making the landing as a live exercise and we could expect them to run the gauntlet back out in a few days or weeks. We were wrong."

"Wrong?"

"We've discovered their reason for making the landing on Oriente. It wasn't what we thought at all."

"That's fast work," said Donal. "What's it been . . . four hours since the landing?"

"They made fast work of it," said Lludrow. "The news is being sat on; but they are firing bursts of a new kind of radiation from projectors that fire once, move, and fire again from some new hiding place—a large number of projectors. And the bursts they fire hit old Sirius himself. We're getting increased sunspot activity." He paused and looked keenly at Donal, as if waiting for comment. Donal took his time, considering the situation.

"Weather difficulties?" he said at last.

"That's it!" said Lludrow, energetically, as though Donal had been a star pupil who had just shone again. "Meteorological opinion says it can be serious, the way they're going about it. And we've already heard their price for calling it off. It seems there's a trade commission of theirs on New Earth right now. No official connection—but the Commission's got the word across."

Donal nodded. He was not at all surprised to hear that trade negotiations were going on in normal fashion between worlds who were at the same time actively fighting each other. That was the normal course of existence between the stars. The ebb and flow of trained personnel on a contractual basis was the lifeblood of civilization. A world who tried to go it on its own would be left behind within a matter of years, to wither on the vine—or at last buy the mere

necessities of existence at ruinous cost to itself. Competition meant the trading of skilled minds, and that meant contracts, and contracts meant continuing negotiations.

"They want a reciprocal brokerage agreement," Lludrow said.

Donal looked at him sharply. The open market trading of contracts had been abandoned between the worlds for nearly fifty years. It amounted to speculating in human lives. It removed the last shreds of dignity and security from the individual and treated him as so much livestock or hardware to be traded for no other reason than the greatest possible gain. The Dorsai, along with the Exotics, Mara and Kultis, had led the fight against it. There was another angle as well. On "tight" worlds such as those of the Venus Group—which included Newton and Cassida—the Friendlies, and Coby, the open market became one more tool of the ruling group; while on "loose" worlds like Freiland, it became a spot of vulnerability where foreign credits could take advantage of local situations.

"I see," said Donal.

"We've got three choices," Lludrow said. "Give in—accept the agreement. Suffer the weather effects over a period of months while we clean out Oriente by orthodox military means. Or pay a prohibitive price in casualties by a crash campaign to clean up Oriente in a hurry. We'd lose as many lives to the conditions down there as we would to the enemy in a crash campaign. So, it's my

notion that it's a time to gamble—my notion, by the way, not Staff's. They don't know anything about this; and wouldn't stand for it if they did. Care to try your idea of throwing a scare into Newton, after all?"

"With pleasure!" said Donal, quickly, his eyes glowing.

"Save your enthusiasm until you hear what you're going to have to do it with," replied Lladrow, dryly. "Newton maintains a steady screen of ninety ships of the first class, in defensive orbit around it. I can give you five."

## Sub-Patrol Chief

"Five!" said Donal. He felt a small crawling sensation down his spine. He had, before Lladrow turned him down the first time, worked out rather carefully what could be done with Newton and how a man might go about it. His plan had called for a lean and compact little fighting force of thirty first-class ships in a triangular organization of three sub-patrols, ten ships to each.

"You see," Lladrow was explaining, "it's not what craft I have available—even with what losses we've just suffered, my Blue Patrol counts over seventy ships of the first class, alone. It's what ships I can trust to you on a job where at least the officers and probably the men as well will realize that it's a mission that should be completely volunteer and that's being sneaked off when Staff's back is turned. The captains of these ships are all strongly loyal to me, per-

sonally, or I couldn't have picked them." He looked at Donal. "All right," he said. "I know it's impossible. Just agree with me and we can forget the matter."

"Can I count on obedience?" asked Donal.

"That," said Lladrow, "is the one thing I can guarantee you."

"I'll have to improvise," said Donal. "I'll go in with them, look at the situation, and see what can be done."

"Fair enough. It's decided then."

"It's decided," said Donal.

"Then come along." Lladrow turned and led him out of the office and through corridors to a lock. They passed through the lock to a small courier ship, empty and waiting for them there; and took it to a ship of the first class, some fifteen minutes off.

Ushered into this ship's large and complex main control room, Donal found five senior captains waiting for him. Lladrow accepted a salute from a gray-haired powerful-looking man, who by saluting revealed himself as captain of this particular ship.

"Captain Bannerman," said Lladrow, introducing him to Donal, "Captain Graeme." Donal concealed a start well. In the general process of his thinking, he had forgotten that a promotion for himself would be necessary. You could hardly put a Staff Liaison with a field rank of commandant over men captaining ships of the first class.

"Gentlemen," said Lladrow, turning to the other executive officers.

"I've been forced to form your five ships rather hastily into a new Sub-Patrol unit. Captain Graeme will be your new chief. You'll form a reconnaissance outfit to do certain work near the very center of the enemy space area; and I want to emphasize the point that Captain Graeme's command is absolute. You will obey any and all of his orders without question. Now, are there any questions any of you would like to ask before he assumes command?"

The five captains were silent.

"Fine, then." Lludrow led Donal down the line. "Captain Graeme, this is Captain Aseini."

"Honored," said Donal, shaking hands.

"Captain Cole."

"Honored."

"Captain Sukaya-Mendez."

"At your service, captain."

"Captain el Man."

"Honored," said Donal. A scarred Dorsai face in its mid-thirties looked at him. "I believe I know your family name, captain. South Continent near Tamlin, isn't it?"

"Sir, near Bridgevort," answered el Man. "I've heard of the Graemes." Donal moved on.

"And Captain Ruoul."

"Honored."

"Well, then," said Lludrow, stepping back briskly. "I'll leave the command in your hands, Captain Graeme. Anything in the way of special supplies?"

"Torpedoes, sir," answered Donal.

"I'll have Armaments Supply contact you," said Lludrow. And left.

DORSAI!

Five hours later, with several hundred extra torpedoes loaded, the five-ship Sub-Patrol moved out for deep space. It was Donal's wish that they get clear of the home base as soon as possible and off where the nature of their expedition could not be discovered and countermanded. With the torpedoes, Lee had come aboard; Donal having remembered that his orderly had been left aboard the C4J. Lee had come through the battle very well, being strapped in his hammock harness throughout in a section of the ship that was undamaged by the hit that had pierced to the control room. Now, Donal had definite instructions for him.

"I want you with me, this time," he said. "You'll stay by me. I doubt very much I might need you; but if I do, I want you in sight."

"I'll be there," said Lee, unemotionally.

They had been talking in the Patrol chief's stateroom, which had been opened to Donal. Now, Donal headed for the main control room, Lee following behind. When Donal reached that nerve center of the ship, he found all three of the ship's officers engaged in calculating the phase shift, with Bannerman overseeing.

"Sir!" said Bannerman as Donal came up. Looking at him, Donal was reminded of his mathematics instructor at school; and he was suddenly and painfully reminded of his own youth.

"About ready to shift?" asked Donal.

"In about two minutes. Sir, you

specified no particular conclusion point, the computer run was a short one. We've merely been making the usual checks to make sure there's no danger of collision with any object. A four light-year jump, sir."

"Good," said Donal. "Come here with me, Bannerman."

He led the way over to the larger and rather more elaborate Control Eye that occupied the center of this control room; and pressed keys. A scene from the library file of the ship filled the globe. It showed a green-white planet with two moons floating in space and lit by the illumination from a GO type sun.

"The orange and the two pips," said Bannerman, revealing a moonless Freilander's dislike for natural planetary satellites.

"Yes," said Donal. "Newton." He looked at Bannerman. "How close can we hit it?"

"Sir?" said Bannerman, looking around at him. Donal waited, holding his eyes steady on the older man. Bannerman's gaze shifted and dropped back to the scene in the Eye.

"We can come out as close as you want, sir," he answered. "See, in deep space jumps, we have to stop to make observations and establish our location precisely. But the precise location of any civilized planet's already established. To come out at a safe distance from their defenses, I'd say, sir—"

"I didn't ask you for a safe distance from their defenses," said Donal, quietly. "I said—how close?"

Bannerman looked up again. His face had not paled; but there was now a set quality about it. He looked at Donal for several seconds.

"How close?" he echoed. "Two planetary diameters."

"Thank you, captain," said Donal.

"Shift in ten seconds," announced the First Officer's voice; and began to count down. "Nine seconds—eight—seven—six—five—four—three—two—shift!"

They shifted.

"Yes," said Donal, as if the shift itself had never interrupted what he was about to say, "out here where it's nice and empty, we're going to set up a maneuver, and I want all the ship's to practice it. If you'll call a captain's conference, captain."

Bannerman walked over to the control board and put in the call. Fifteen minutes later, with all junior officers dismissed, they gathered in the privacy of the control room of Bannerman's ship and Donal explained what he had in mind.

"In theory," he said, "our Patrol is just engaged in reconnaissance. In actuality, we're going to try to simulate an attacking force making an assault on the planet Newton."

He waited a minute to allow the weight of his words to register on their minds; and then went on to explain his intentions.

They were to set up a simulated planet on their ship's instruments. They would approach this planet, which was to represent Newton, according to a random pattern and from different directions, first a sin-

gle ship, then two together, then a series of single ships—and so on. They would, theoretically, appear into phase just before the planet, fire one or more torpedoes, complete their run past the planet and immediately go out of phase again. The intention would be to simulate the laying of a pattern of explosions covering the general surface of the planet.

There was, however to be one main difference. Their torpedoes were to be exploded well without the outer ring of Newton's orbits of defense, as if the torpedoes were merely intended as a means to release some radiation or material which was planned to fall in toward the planet, spreading as it went.

And, one other thing, the runs were to be so timed that the five-ship force, by rotation, could appear to be a large fleet engaged in continuous bombardment.

"... Any suggestions or comments?" asked Donal, winding it up. Beyond the group facing him, he could see Lee, lounging against the control room wall and watching the captains with a colorless gaze.

There was no immediate response; and then Bannerman spoke up slowly, as if he felt it had devolved upon him, the unwelcome duty of being spokesman for the group.

"Sir," he said, "what about the chances of collision?"

"They'll be high, I know," said Donal. "Especially with the defending ships. But we'll just have to take our chances."

"May I ask how many runs we'll be making?"

"As many," said Donal, "as we can." He looked deliberately around the group. "I want you gentlemen to understand. We're going to make every possible attempt to avoid open battle or accidental casualties. But these things may not be avoidable considering the necessarily high number of runs."

"How many runs did you have in mind, captain?" asked Sukaya-Mendez.

"I don't see," replied Donal, "how we can effectively present the illusion of a large fleet engaged in saturation bombardment of a world in under a full two hours of continuous runs."

"Two hours!" said Bannerman. There was an instinctive murmur from the group. "Sir," continued Bannerman. "Even at five minutes a run, that amounts with five ships to better than two runs an hour. If we double up, or if there's casualties it could run as high as four. That's eight phase shifts to an hour—sixteen in a two-hour period. Sir, even doped to the ears, the men on our ships can't take that."

"Do you know of anyone who ever tried, captain?" inquired Donal.

"No, sir—" began Bannerman.

"Then how do we know it can't be done?" Donal did not wait for an answer. "The point is, it must be done. You're being required only to navigate your ships and fire possibly two torpedoes. That doesn't require the manpower it would to fight your ships under ordinary conditions. If



some of your men become unfit for duty, make shift with the ones you have left."

"*Shai Dorsai!*!" murmured the scarred el Man; and Donal glanced toward him, as grateful for the support as for the compliment.

"Anyone want out?" Donal asked crisply.

There was a slow, but emphatic, mutter of negation from all of them.

"Right," Donal took a step back from them. "Then let's get about our practice runs. Dismissed, gentlemen."

He watched the four from other ships leave the control room.

"Better feed and rest the crews," Donal said, turning to Bannerman. "And get some rest yourself, I intend to. Have a couple of meals sent to my quarters."

"Sir," acknowledged Bannerman. Donal turned and left the control room, followed by Lee as by a shadow. The Cobylan was silent until they were in the stateroom; then he growled: "What did that scarface mean by calling you shy?"

"Shy?" Donal turned about in surprise.

"Shaey, shy—something like that."

"Oh," Donal smiled at the expression on the other's face. "That wasn't an insult, Lee. It was a pat on the back. *Shai* was what he said. It means something like—true, pure, the actual."

Lee grunted. Then he nodded.

"I guess you can figure on him," he said.

The food came, a tray for each of

them. Donal ate lightly and stretched himself out on the couch. It seemed he dropped instantly into sleep; and when he awoke at the touch of Lee's hand on his shoulder he knew he had been dreaming—but of what, he could not remember. He remembered only a movement of shapes in obscurity, as of some complex physics problem resolving itself in terms of direction and mass, somehow given substance.

"Practice about to start," said Lee.

"Thank you, orderly," he said automatically. He got to his feet and headed toward the control room, shedding the druggedness of his sleep as he went. Lee had followed him, but he was not aware of this until the Cobylan pushed a couple of small white tablets into his hand.

"Medication," said Lee. Donal swallowed them automatically. Bannerman, over by the control board, had seen him come in, and now turned and came across the floor.

"Ready for the first practice run, sir," he said. "Where would you like to observe—controls, or Eye?"

Donal looked and saw they had a chair set up for him in both locations.

"Eye," he said. "Lee, you can take the other chair, as long as there does not seem to be one for you."

"Captain, you—"

"I know, Bannerman," said Donal, "I should have mentioned the fact I meant to have my orderly up here. I'm sorry."

"Not at all, sir." Bannerman went over and fitted himself into his own

DORSAL!

chair, followed by Lee. Donal turned his attention to the Eye.

The five ships were in line, in deep space, at thousand-kilometer intervals. He looked at their neat Indian file and stepped up the magnification slightly so that in spite of the distance that should have made even the nearest invisible, they appeared in detail, in-lighted by the Eye.

"Sir," said Bannerman; and his quiet voice carried easily across the room. "I've arranged a key-in. When we make our phase shift, that library tape will replace the image in the Eye, so you can see what our approach will actually look like."

"Thank you, captain."

"Phase shift in ten seconds—"

The count-down ticked off like the voice of a clock. Then, there was the sensation of a phase shift; and abruptly Donal was sweeping closely over a planet, barely fifty thousand kilometers distance from its surface. "Fire—" and "Fire—" spoke the speaker in the control room ceiling. Again, the indescribable destruction and rebuilding of the body. The world was gone and they were again in deep space.

Donal looked at the four other ships in line. Abruptly the leading one disappeared. The rest continued, seemingly, to hang there, without motion. There was no sound in the control room about him. The seconds crept by, became minutes. The minutes crawled. Suddenly—a ship appeared in front of Bannerman's craft.

Donal looked back at the three be-

hind. Now, there were only two.

The run continued until all the ships had made their pass.

"Again," ordered Donal.

They did it again; and it went off without a hitch.

"Rest," said Donal, getting out of the chair. "Captain, pass the word for all ships to give their personnel a break of half an hour. Make sure everyone is fed, rested, and supplied with medication. Also supply every person with extra medication to be taken as needed. Then, I'd like to talk to you, personally."

When Bannerman had accomplished these orders and approached Donal, Donal took him aside.

"How about the reactions of the men?" he asked.

"Fine, captain," Bannerman said; and Donal was surprised to read a true enthusiasm in his voice. "We've got good crews, here. High level-ratings, and experience."

"I'm glad to hear it," said Donal, thankfully. "Now . . . about the time interval—"

"Five minutes exactly, sir," Bannerman looked at him inquiringly. "We can shorten slightly, or lengthen as much as you want."

"No," said Donal. "I just wanted to know. Do you have battle dress for me and my orderly?"

"It's coming up from stores."

The half hour slid by quickly. As it approached its end and they prepared to tie into their chairs, Donal noticed the chronometer on the control room wall. It stood at 23:10 and the half hour would be up at 23:12.

"Make that start at 23:15," he directed Bannerman. The word was passed to the other ships. Everyone was in battle dress, in their chairs and at their posts, waiting. Donal felt a strange metallic taste in his mouth and the slow sweat began to work out on the surface of his skin.

"Give me an all-ship hookup," he said. There was a few seconds pause, and then a Third Officer spoke from the control panel.

"You're hooked in, sir."

"Men," said Donal. "This is Captain Graeme." He paused. He had no idea what he had intended to say. He had asked for the hookup on impulse, and to break the strain of the last few moments which must be weighing on all the rest as much as him. "I'll tell you one thing. This is something Newton's never going to forget. Good luck to all of you. That's all."

He wigwagged to the Third Officer to cut him off; and looked up at the clock. A chime sounded softly through the ship.

It was 23:15.

## SUB-PATROL CHIEF II

Newton was not to forget.

To a world second only to Venus in its technical accomplishments—and some said not even second—to a world rich in material wealth, haughty with its knowledge, and complacent in the contemplation of its lavish fighting forces, came the shadow of the invader. One moment its natives were secure as they had

always been behind the ringing strength of their ninety ships in orbit—and then enemy craft were upon them, making runs across the skies of their planet, bombing them with—what?

No, Newton was never to forget. But that came afterward.

To the men in the five ships, it was the here and now that counted. Their first run across the rich world below them seemed hardly more than another exercise. The ninety ships were there—as well as a host of other spacecraft. They—or as many of them as were not occluded by the body of the planet—registered on the instruments of the Freilander ships. But that was all. Even the second run was almost without incident. But by the time Donal's leading ship came through for the start of the third run, Newton was beginning to buzz like a nest of hornets, aroused.

The sweat was running freely down Donal's face as they broke into the space surrounding the planet; and it was not tension alone that was causing it. The psychic shocks of five phase shifts were taking their toll. Halfway in their run there was a sudden sharp tremor that shook their small white-walled world that was the control room, but the ship continued as if unhurt, released its second torpedo and plunged into the safety of its sixth phase shift.

"Damage?" called Donal—and was surprised to hear his voice issue on an odd croaking note. He swallowed and asked again, in a more normal, controlled tone. "Damage?"

"No damage—" called an officer sharply, from the control panel. "Close burst."

Donal turned his eyes almost fiercely back onto the scene in the Eye. The second ship appeared. Then the third. The fourth. The fifth.

"Double up this time!" ordered Donal harshly. There was a short minute or two of rest and then the sickening wrench of the phase shift again.

In the Eye, its magnification jumping suddenly, Donal caught sight of two Newtonian ships, one planetward, the other in a plane and at approximately two o'clock to the line of the bombing run they had begun.

"Defensive—" began Donal; but the gun crews had waited for no order. Their tracking has been laid and the computers were warm. As he watched, the Newtonian ship which was ahead and in their plane opened out like a burst balloon in slow motion and seemed to fall away from them.

—Another phase shift.

The room swam for a second in Donal's blurred eyes. He felt a momentary surge of nausea; and, on the heels of it, heard someone over at the panel, retching. He blazed up inside, forcing an anger to fight the threatening sickness.

*It's in your mind—it's all in your mind*—he slapped the thought at himself like a curse. The room steadied; the sickness retreated a little way.

"Time—" It was Bannerman, calling in a half-gasping voice from the

panel. Donal blinked and tried to focus on the scene in the Eye. The rank odor of his own sweat was harsh in his nostrils—or was it simply that the room was permeated with the stink of all their sweating?

In the Eye he could make out that four ships had come through on this last run. As he watched, the fifth winked into existence.

"Once more!" he called, hoarsely. "In at a lower level, this time." There was a choked, sobbing-like sound from the direction of the panel; but he deliberately did not turn his head to see who it was.

*Again the phase shift.*

Blur of planet below. A sharp shock. Another.

*Again the phase shift.*

The control room—full of mist? No—his own eyes. Blink them. Don't be sick.

"Damage?"

No answer.

"Damage!"

"—Light hit. Aft. Sealed—"

"Once more."

"Captain—" Bannerman's voice, "we can't make it again. One of our ships—"

Check in the Eye. Images dancing and wavering—yes, only four ships.

"Which one?"

"I think—" Bannerman, gasping, "Mendez."

"Once more."

"Captain, you can't ask—"

"Give me a hookup then." Pause. "You hear me? Give me a hookup."

"Hookup—" some officer's voice. "You're hooked up, captain."

"All right, this is Captain Graeme." Croak and squeak. Was that *his* voice speaking. "I'm calling for volunteers—one more run. Volunteers only. Speak up, anyone who'll go."

Long pause.

"*Shai Dorsai!*"

"*Shai el Man!*—any others?"

"Sir—" Bannerman—"The other two ships aren't receiving."

Blink at Eye. Focus. True. Two of three ships there yawning out of line.

"Just the two of us then. Bannerman?"

"At"—croaking—"your orders, sir."

"Make the run."

Pause . . .

*Phase shift!*

Planet, whirling—shock—dark space. Can't black out now—

"Pull her out of it!" Pause. "Bannerman!"

Weakly responding: "Yes sir—"

PHASE SHIFT

—Darkness . . .

"—Up!"

It was a snarling, harsh, bitter whisper in Donal's ear. He wondered, eyes-closed, where it was coming from. He heard it again, and once again. Slowly it dawned on him that he was saying it to himself.

He fought his eyes open.

The control room was still as death. In the depths of the eye before him three small tiny shapes of ships could be seen, at full magnification, far-flung from each other. He fumbled with dead fingers at the ties on

his suit, that bound them to his chair. One by one they came free. He pushed himself out of the chair and fell to his knees on the floor.

Swaying, staggering, he got to his feet. He turned himself toward the five chairs at the control panel, and staggered to them.

In four of the chairs, Bannerman and his three officers sagged unconscious. The Third Officer seemed more than unconscious. His face was milkish white and he did not seem to be breathing. All four men had been sick.

In the fifth chair, Lee hung twisted in his ties. He was not unconscious. His eyes were wide on Donal as he approached, and a streak of blood had run down from one corner of the orderly's mouth. He had apparently tried to break his ties by main strength, like a mindless animal, and go directly to Donal. And yet his eyes were not insane, merely steady with an unnatural fixity of purpose. As Donal reached him Lee tried to speak; but all he was able to manage for a second was a throttled sound, and a little more blood came out of the corner of his mouth.

"Y'arright?" he mumbled, finally.

"Yes," husked Donal. "Get you loose in a minute. What happened to your mouth?"

"Bit tongue—" mumbled Lee thickly. "M'arright."

Donal unfastened the last of the ties and, reaching up, opened Lee's mouth with his hands. He had to use real strength to do so. A little more blood came out, but he was

able to see in. One edge of Lee's tongue, halfway back from the tip, had been bitten entirely through.

"Don't talk," directed Donal. "Don't use that tongue at all until you can get it fixed."

Lee nodded, with no mark of emotion, and began painfully to work out of the chair.

By the time he was out, Donal had managed to get the ties loose on the still form of the Third Officer. He pulled the man out of the chair and laid him on the floor. There was no perceptible heartbeat. Donal stretched him out and attempted to begin artificial respiration; but at the first effort his head swam dizzily and he was forced to stop. Slowly he pulled himself erect and began to break loose the ties on Bannerman.

"Get the Second, if you feel up to it," he told Lee. The Cobymen staggered stiffly around to the Second Officer and began work on his ties.

Between the two of them, they got the three Freilanders stretched out on the floor and their helmets off. Bannerman and the Second Officer began to show signs of regaining consciousness and Donal left them to make another attempt at respiration with the Third Officer. But he found the body, when he touched it, was already beginning to cool.

He turned back and began work on the First Officer, who was still laxly unconscious. After a while the First Officer began to breathe deeply and more steadily; and his eyes opened. But it was apparent from his gaze

that he did not see the rest of them, or know where he was. He stared at the control panel with blank eyes like a man in a heavily drugged condition.

"How're you feeling?" Donal asked Bannerman. The Freiland captain grunted, and made an effort to raise himself up on one elbow. Donal helped, and between the two of them they got him, first sitting up, then to his knees, and finally—with the help of the back of a chair to pull him up—to his feet.

Bannerman's eyes had gone directly to the control panel, from the first moment they had opened. Now, without a word, he pulled himself painfully back into his chair and began clumsily to finger studs.

"All ship sections," he croaked into the grille before him. "Report."

There was no answer.

"Report!" he said. His forefinger came down on a button and an alarm bell rang metallically loud through the ship. It ceased and a faint voice came from the speaker overhead.

"Fourth Gun Section reporting as ordered, sir—"

The battle of Newton was over.

## HERO

Sirius himself had just set; and the small bright disk of that white dwarf companion that the Freilanders and the New Earthmen had a number of uncomplimentary names for, was just beginning to show strongly through the wall of Donal's bedroom. Donal sat, bathed in the in-between light,

dressed in only a pair of sport trunks, sorting through some of the interesting messages that had come his way, recently—since the matter of the raid on Newton.

So engrossed was he that he paid no attention until Lee tapped him on one brown-tanned shoulder.

"Time to dress for the party," said the Cobyman. He had a gray dress uniform of jacket and trousers, cut in the long-line Freiland style, over one am. It was fashionably free of any insignia of rank. "I've got a couple of pieces of news for you. First, *she* was here again."

Donal frowned, getting into the uniform. Elvine had conceived the idea of nursing him after his return from the short hospital stay that had followed the Newton affair. It was her convenient conclusion that he was still suffering from the psychological damage of the overdose of phase-shifting they had all gone through. Medical opinion and Donal's to the contrary, she had insisted on attaching herself to him with a constancy which lately had led him to wonder if perhaps he would not have preferred the phase shifting itself. The frown now vanished, however.

"I think I see an end to that," he said. "What else?"

"This William of Ceta you're so interested in," answered Lee. "He's here for the party."

Donal turned his head to look sharply at the man. But Lee was merely delivering a report. The bony face was empty of even those small signs of expression which Donal had

come to be able to read, in these past weeks of association.

"Who told you I was interested in William?" he demanded.

"You listen when people talk about him," said Lee. "Shouldn't I mention him?"

"No, that's all right," Donal said. "I want you to tell me whenever you find out anything about him you think I might not know. I just didn't know you observed that closely."

Lee shrugged. He held the jacket for Donal to slide his arms into.

"Where'd he come from?" asked Donal.

"Venus," said Lee. "He's got a Newton man with him—big young drunk named Montor. And a girl—one of those special people from the Exotics."

"The Select of Kultis?"

"That's right."

"What're they doing here?"

"He's top-level," said Lee. "Who is, on Freiland and not here for your party?"

Donal frowned again. He had almost managed to forget that it was in his honor these several hundred well-known people would be gathered here tonight. Oh—not that he would be expected to place himself on show. The social rules of the day and this particular world made lionizing impolite. Direct lionizing, that is. You honored a man by accepting his hospitality, that was the theory. And since Donal had little in the way of means to provide hospitality for the offering, the marshal had stepped into the breach. Nevertheless,

this was the sort of occasion that went against Donal's instinctive grain.

He put that matter aside and returned to that of William. If the man happened to be visiting Freiland it would be unthinkable that he should not be invited, and hardly thinkable that he should decline to come. It could be just that. Perhaps, thought Donal with a weariness beyond his years, I'm starting at shadows. But even as his mind framed the thought, he knew it was not true. It was that oddness in him, now more pronounced than ever since the psychic shaking-up of the Newtonian battle, with its multiple phase shifts. Things seen only dimly before were now beginning to take on shape and substance for him. A pattern was beginning to form, with William as its center, and Donal did not like what he saw of the pattern.

"Let me know what you can find out about William," he said.

"Right," replied Lee. "And the Newton man?"

"And the girl from the Exotics." Donal finished dressing and took a back slipway down to the marshal's office. Elvine was there, and with her and the marshal, as guests, were William and Anea.

"Come in, Donal!" called Galt, as Donal hesitated in the entrance. "You remember William and Anea, here!"

"I'd be unlikely to forget." Donal came in and shook hands. William's smile was warm, his handclasp firm;

but the hand of Anea was cool and quickly withdrawn from Donal's grasp, and her smile perfunctory. Donal caught Elvine watching them closely; and a faint finger of warning stirred the surface of Donal's mind.

"I've looked forward to seeing you again," said William. "I owe you an apology, Donal. Indeed I do. I've underestimated your genius considerably."

"Not genius," said Donal.

"Genius," insisted William. "Modesty's for little men." He smiled frankly. "Surely you realize this affair with Newton's made you the newest nova on our military horizon?"

"I'll have to watch out your flattery doesn't go to my head, Prince." Donal could deal in double meaning, too. William's first remark had put him almost at his ease. It was not the

wolves among people who embarrassed and confused him; but the sheep dogs gone wrong. Those, in fact, who were equipped by nature and instinct to be one thing and through chance and wrongheadedness found themselves acting contrary to their own natures. Possibly, he had thought, that was the reason he found men so much easier to deal with than women—they were less prone to self-deception. Now, however, a small intake of breath drew his attention to Anea.

"You're modest," she said; but two touches of color high on the cheekbones of her otherwise slightly pale face, and her unfriendly eyes, did not agree with her.

"Maybe," he said, as lightly as he could, "that's because I don't really believe I've got anything to be modest about. Anyone could have done



what I did above Newton--and, in fact, several hundred other men did. Those that were there with me."

"Oh, but it was your idea," put in Elvine.

Donal laughed.

"All right," he said. "For the idea, I'll take credit."

"Please do," said Anea.

"Well," put in Galt, seeing that things were getting out of hand. "We were just about to go in and join the party, Donal. Will you come along?"

"I'm looking forward to it," answered Donal, smoothly.

They proceeded, a small knot of people, out through the big doors of the office and into the main hall of the mansion. It was already full of guests interspersed with drifting floats laden with food and drinks. Into this larger body of people, their small group melted like one drop of coloring matter into a glass of water. Their individual members were recognized, captured and dispersed by other guests; and in a few seconds they were all separated—all but Donal and Elvine, who had taken his arm possessively, as they had come out of the office.

She pulled him into the privacy of a small alcove.

"So that's what you've been mooning over!" she said, fiercely. "It's her!"

"Her?" he pulled his arm loose. "What's wrong with you, Ev?"

"You know who I mean!" she snapped. "That Select girl. It's her you're after—though why, I don't

know. She's certainly nothing special to look at. And she's hardly even grown up yet."

He chilled suddenly. And she—abruptly realizing that this time she had gone too far, took a sudden, frightened step back from him. He fought to control himself; but this was the authentic article, one of the real Dorsai rages that was his by inheritance. His limbs were cold, he saw everything with an unnatural clarity, and his mind ticked away like some detached machine in the far depths of his being. There was murder in him at the moment. He hung balanced on the knife edge of it.

"Good-by, Ev," he said. She took another, stiff-legged step back from him, then another, and then she turned and fled. He turned about to see the shocked faces of those nearby upon him.

His glance went among them like a scythe, and they fell away before it. He walked forward through them and out of the hall as if he had been alone in the room.

He was pacing back and forth in the bare isolation of the marshal's office, walking off the charge of adrenalin that had surged through him on the heels of his emotion, when the door opened. He turned like a wolf; but it was only Lee.

"You need me?" asked Lee.

The three words broke the spell. The tension in him snapped suddenly; and he burst out laughing. He laughed so long and loud that the Cobymen's eyes became shadowed

first with puzzlement, and then with a sort of fear.

"No . . . no . . . it's all right," he gasped at last. He had a fastidiousness about casually touching people; but now he clapped Lee on the shoulder to reassure him, so unhappy did the lean man look. "See if you can find me a drink—some Dorsai whisky."

Lee turned and left the room. He was back in seconds with a tulip-shaped glass holding perhaps a deciliter of the bronze whisky. Donal drank it down, grateful for the burn in his throat.

"Learn anything about William?" He handed the glass back to Lee.

Lee shook his head.

"Not surprised," murmured Donal. He frowned. "Have you seen ArDell Montor around—that Newtonian that came with William?"

Lee nodded.

"Can you show me where I can find him?"

Lee nodded again. He led Donal out onto the terrace, down a short distance, and in through an open wall to the library. There, in one of the little separate reading cubicles, he found ArDell alone with a bottle and some books.

"Thanks, Lee," said Donal. Lee vanished. Donal came forward and sat down at the small table in the cubicle opposite ArDell and his bottle.

"Greetings," said ArDell, looking up. He was not more than slightly drunk by his own standards. "Hoping to talk to you."

"Why didn't you come up to my room?" asked Donal.

"Not done," ArDell refilled his glass, glanced about the table for another and saw only a vase with some small native variform lilies in it. He dumped these on the floor, filled the vase and passed it politely to Donal.

"No thanks," said Donal.

"Hold it anyway," ArDell said. "Makes me uncomfortable, drinking with a man who won't drink. No, besides, better to just bump into each other." He looked at Donal suddenly with one of his unexpected flashes of soberness and shrewdness. "He's at it again."

"William?"

"Who else?" ArDell drank. "But what would he be doing with Project Blaine?" ArDell shook his head. "There's a man. And a scientist. Make two of any of the rest of us. Can't see him leading Blaine around by the nose—but still . . ."

"Unfortunately," said Donal, "we are all tied to the business end of our existence by the red tape in our contracts. And it's in business William shines."

"But he doesn't make sense!" ArDell twisted the glass in his hands. "Take me. Why would he want to ruin me? But he does." He chuckled suddenly. "I've got him scared now."

"You have?" asked Donal. "How?"

ArDell tapped the bottle with one forefinger.

"This. He's afraid I may kill myself. Evidently he doesn't want that."

"Will you?" asked Donal, bluntly.

ArDell shook his head.

"I don't know. Could I come out of it, now? It's been five years. I started it deliberately to spite him—didn't even like the stuff, like you. Now, I wonder. I'll tell you"—he leaned forward over the table—"they can cure me, of course. But would I be any good now, if they did? Math—it's a beautiful thing. Beautiful like art. That's the way I remember it; but I'm not sure. Not sure at all any more." He shook his head again. "When the time comes to dump this," he pointed again at the bottle, "you need something that means more to you. I don't know if work does, any more."

"How about William?" asked Donal.

"Yes," said ArDell, slowly, "there is him. That would do it. One of these days I'm going to find out why he did this to me. Then—"

"What does he seem to be after?" asked Donal. "I mean, in general?"

"Who knows?" ArDell threw up his hands. "Business. More business. Contracts—more contracts. Agreements with every government, a finger in every honeypot. That's our William."

"Yes," said Donal. He pushed back his float and stood up.

"Sit down," said ArDell. "Stop and talk. You never sit still for more than a second or two. For the love of peace, you're the only man between the stars I can talk to, and you won't sit still."

"I'm sorry," Donal said. "But there're things I have to do. A day'll

come, maybe, when we can sit down and talk."

"I doubt it," muttered ArDell. "I doubt it very much."

Donal left him there, staring at his bottle.

He went in search of the marshal; but it was Anea he encountered first, standing upon a small balcony, deserted except for herself; and gazing out over the hall, directly below, with an expression at the same time so tired and so longing that he was suddenly and deeply moved by the sight of it.

He approached her, and she turned at the sound of his footsteps. At the sight of him, her expression changed.

"You again," she said, in no particularly welcome tone.

"Yes," said Donal, brusquely. "I meant to search you out later, but this is too good a chance to pass up."

"Too good."

"I mean you're alone . . . I mean I can talk to you privately," said Donal, impatiently.

She shook her head.

"We've got nothing to talk about," she said.

"Don't talk nonsense," said Donal. "Of course we have—unless you've given over your campaign against William."

"Well!" The word leaped from her lips and her eyes flashed their green fire at him. "Who do you think you are?" she cried furiously. "Who ever gave you the right to have any say about what I do?"

"I'm part Maran through both my grandmothers," he said. "Maybe that's why I feel a sense of responsibility to you."

"I don't believe it!" she snapped. "About you being part Maran, that is. You couldn't be part Maran, someone like you, a—" she checked, fumbling for words.

"Well?" He smiled a little grimly at her. "A what?"

"A . . . mercenary!" she cried triumphantly, finding at last the word that would hurt him the most, in her mis-interpretation of it.

He was hurt, and angered; but he managed to conceal it. This girl had the ability to get through his defenses on the most childish level, where a man like William could not.

"Never mind that," he said. "My question was about you and William. I told you not to try intriguing against him the last time I saw you. Have you followed that advice?"

"Well, I certainly don't have to answer that question," she blazed directly at him. "And I won't."

"Then," he said, finding suddenly an insight into her that was possibly a natural compensation for her unusual perceptiveness where he was concerned. "You have. I'm glad to know that." He turned to go. "I'll leave you now."

"Wait a minute," she cried. He turned back to her. "I didn't do it because of you!"

"Didn't you?"

Surprisingly, her eyes wavered and fell.

"All right!" she said. "It just hap-

pened your ideas coincided with mine."

"Or, that what I said was common sense," he retorted, "and being the person you are, you couldn't help seeing it."

She looked fiercely up at him again.

"So he just goes on . . . and I'm chained to him for another ten years with options—"

"Leave that part to me," said Donal.

Her mouth opened.

"You!" she said; and her astonishment was so great that the word came out in a tone of honest weakness.

"I'll take care of it."

"You!" she cried. And the word was entirely different this time. "You put yourself in opposition to a man like William—" she broke off suddenly, turning away. "Oh!" she said, angrily, "I don't know why I keep listening to you as if you were actually telling the truth—when I know what kind of person you are."

"You don't know anything at all about what kind of person I am!" he snapped, nettled again. "I've done a few things since you first saw me."

"Oh, yes," she said, "you've had a man shot, and pretended to bomb a planet."

"Good-by," he said, wearily, turning away. He went out through the little balcony entrance, abruptly leaving her standing there; and unaware that he had left her, not filled with the glow of righteous indignation and triumph she had expected, but oddly disconcerted and dismayed.

He searched throughout the rest of the mansion and finally located the marshal back in his office, and alone.

"May I come in, sir?" he said from the doorway.

"Of course, of course—" Galt looked up from his desk. "Lock the door behind you. I've had nothing but people drifting in, thinking this was an extra lounge. Why'd they think I had it set up without any comfortable floats or cushions in the first place?"

Donal locked the door behind him and came across the wide floor to the desk.

"What is it, boy?" asked the marshal. He raised his heavy head and regarded Donal intently. "Something up?"

"A number of things," agreed Donal. He took the bare float beside the desk that Galt motioned him into. "May I ask if William came here tonight with the intention of transacting any business with you?"

"You may ask," answered Galt, putting both his massive forearms on the desk, "but I don't know why I should answer you."

"Of course you needn't," said Donal. "Assuming he did, however, I'd like to say that in my opinion it would be exceedingly unwise to do any business with Ceta at this time—and particularly William of Ceta."

"And what causes this to be your opinion?" asked Galt, with a noticeable trace of irony. Donal hesitated.

"Sir," he said, after a second. "I'd like to remind you that I was right on Harmony, and right about New-

ton; and that I may be right here, as well."

It was a large pill of impertinence for the marshal to swallow; since, in effect, it pointed out that if Donal had twice been right, Galt had been twice wrong—first about his assessment of Hugh Killien as a responsible officer, and second about his assessment of the reasons behind the Newtonian move on Oriente. But if he was Dorsai enough to be touchy about his pride, he was also Dorsai enough to be honest when he had to.

"All right," he said. "William did come around with a proposition. He wants to take over a large number of our excess land forces, not for any specific campaign, but for re-leasing to other employers. They'd remain our troops. I was against it, on the grounds that we'd be competing against ourselves when it came to offering troops to outside markets, but he proved to me the guarantee he's willing to pay would more than make up for any losses we might have. I also didn't see how he intended to make his own profit out of it, but evidently he intends training the men to finer specializations than a single planet can afford to do, and maintain a balanced force. And God knows Ceta's big enough to train all he wants, and that its slightly lower gravity doesn't hurt either—for our troops, that is."

He got his pipe out of a compartment in the desk and began to fill it.

"What's your objection?" he asked.

"Can you be sure the troops won't be leased to someone who might use them against you?" Donal asked.

Galt's thick fingers ceased suddenly to fill his pipe. "We can insist on guarantees."

"But how much good are guarantees in a case like that?" asked Donal. "The man who gives you the guarantee—William—isn't the man who might move the troops against you. If Freilander leased troops were suddenly found attacking Freilander soil, you might gain the guarantee, but lose the soil."

Galt frowned.

"I still don't see," he said, "how that could work out to William's advantage."

"It might," said Donal, "in a situation where what he stood to gain by Freilander fighting Freilander was worth more than the guarantee."

"How could that be?"

Donal hesitated on the verge of those private suspicions of his own. Then he decided that they were not yet solid enough to voice to the marshal; and might, indeed, even weaken his argument.

"I don't know," he replied. "However, I think it'd be wise not to take the chance."

"Hah!" Galt snorted and his fingers went back to work, filling the pipe. "You don't have to turn the man down—and justify your refusal to Staff and Government."

"I don't propose that you turn him down outright," said Donal. "I suggest you only hesitate. Say that in your considered opinion the interstel-

lar situation right now doesn't justify your leaving Freiland short-handed of combat troops. Your military reputation is good enough to establish such an answer beyond question."

"Yes"—Galt put the pipe in his mouth and lit it thoughtfully—"I think I may just act on that recommendation of yours. You know, Donal, I think from now on you better remain as my aide, where I can have the benefit of your opinions handy when I need them."

Donal winced.

"I'm sorry, sir," he said. "But I was thinking of moving on—if you'll release me."

Galt's eyebrows abruptly drew together in a thicket of dense hair. He took the pipe from his mouth.

"Oh," he said, somewhat flatly. "Ambitious, eh?"

"Partly," said Donal. "But partly—I'll find it easier to oppose William as a free agent." Galt bent a long, steady look upon him.

"By heaven," he said, "what is this personal vendetta of yours against William?"

"I'm afraid of him," answered Donal.

"Leave him alone and he'll certainly leave you alone. He's got bigger fish to fry—" Galt broke off, jammed his pipe into his mouth and bit hard on the stem.

"I'm afraid," said Donal, sadly, "there are some men between the stars that are just not meant to leave each other alone." He straightened in his chair. "You'll release my contract, then?"

"I won't hold any man against his will," growled the marshal. "Except in an emergency. Where were you thinking of going?"

"I've had a number of offers," said Donal. "But I was thinking of accepting one from the Joint Church Council of Harmony and Association. Their Chief Elder's offered me the position of War Chief for both the Friendlies."

"Eldest Bright? He's driven every commander with a spark of independence away from him."

"I know," said Donal. "And just for that reason I expect to shine the more brightly. It should help build my reputation."

"By—" Galt swore softly. "Always thinking, aren't you?"

"I suppose you're right," said Donal, a trifle unhappily. "It comes of being born with a certain type of mind."

## WAR CHIEF

The heels of his black boots clicking against the gray floor of the wide office of the Defense Headquarters on Harmony, the aide approached Donal's desk.

"Special, urgent and private, sir." He placed a signal tape in the blue shell of ordinary communications on the desk pad.

"Thank you," said Donal, and waved him off. He broke the seal on the tape, placed it in his desk unit, and—waiting until the aide had left the room—pressed the button that would start it.

His father's voice came from the speaker, deep-toned.

"Donal, my son—

"We were glad to get your last tape; and to hear of your successes. No one in this family has done so well in such a short time, in the last five generations. We are all happy for you here, and pray for you and wait to hear from you again."

"But I am speaking to you now on an unhappy occasion. Your uncle, Kensie, was assassinated one night shortly over a month ago in the back streets of the city of Blauvain, on St. Marie, by a local terrorist group in opposition to the government there. Ian, who was, of course, an officer in the same unit, later somehow managed to discover the headquarters of the group in some alley or other and killed the three men he found there with his hands. However, this does not bring Kensie back. He was a favorite of us all; and we are all hard hit, here at home, by his death."

"It is Ian, however, who is presently the cause of our chief concern. He brought Kensie's body home, refusing burial on St. Marie, and has been here now several weeks. You know he was always the dark-natured of the twins, just as it seemed that Kensie had twice the brightness and joy in life that is the usual portion of the normal man. Your mother says it is now as if Ian had lost his good angel, and is abandoned to the forces of darkness which have always had such a grip on him."

"She does not say it in just that way, of course. It is the woman and

the Maran in her, speaking—but I have not lived with her thirty-two years without realizing that she can see further into the soul of a man or woman than I can. You have in some measure inherited this same gift, Donal; so maybe you will understand better what she means. At any rate, it is at her urging that I am sending you this signal; although I would have been speaking to you about Kensie's death, in any case.

"As you know, it has always been my belief that members of the same immediate family should not serve too closely together in field or garrison—in order that family feelings should not be tempted to influence military responsibilities. But it is your mother's belief that Ian should not now be allowed to sit in his dark silence about the place, as he has been doing; but that he should be once more in action. And she asks me to ask you if you could find a place for him on your staff, where you can keep your eye on him. I know it will be difficult for both of you to have him filling a duty post in a position subordinate to you; but your mother feels it would be preferable to the present situation.

"Ian has expressed no wish to return to an active life; but if I speak to him as head of the family, he will go. Your brother Mor is doing well on Venus and has recently been promoted to commandant. Your mother urges you to write him, whether he has written you or not, since he may be hesitant to write you without reason, you having done so well in so

short a time, although he is the older.

"All our love. Eachan."

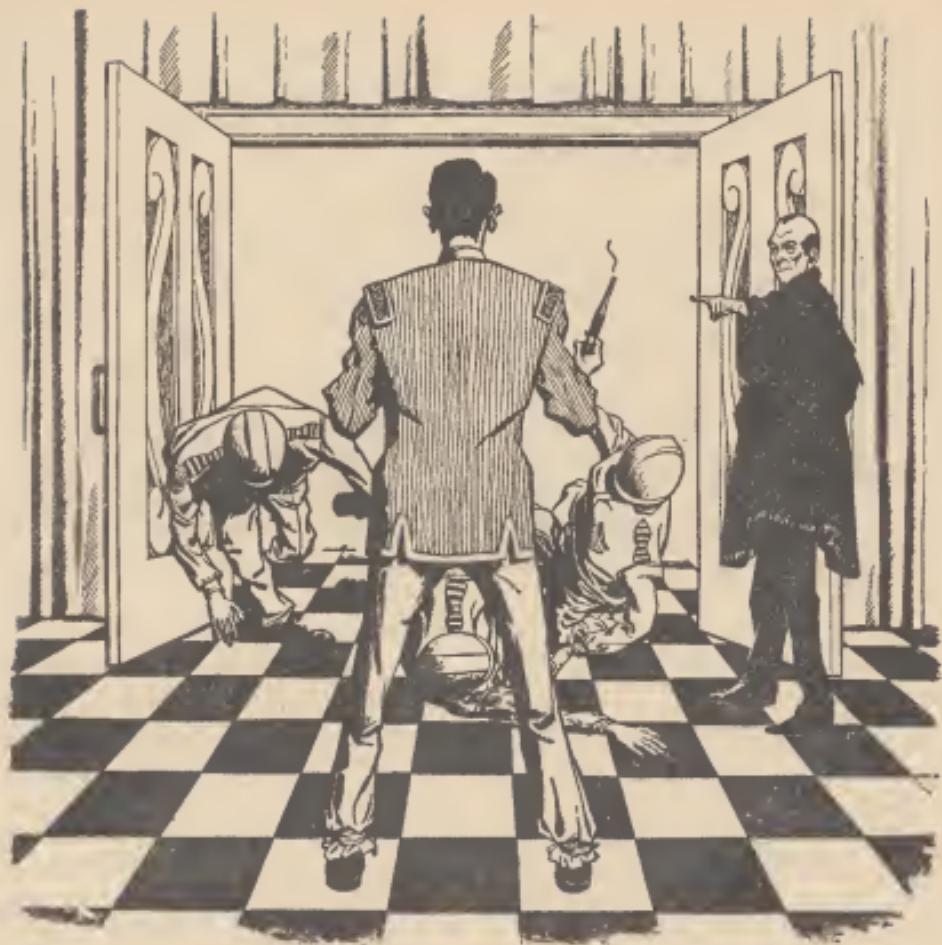
The spool, seen through the little transparent cover, stopped turning. The echoes of Eachan Khan Graeme's voice died against the gray walls of the office. Donal sat still at his desk, his eyes fixed on nothing, remembering Kensie.

It seemed odd to him, as he sat there, to discover that he could remember so few specific incidents. Thinking back, his early life seemed to be filled with his smiling uncle—and yet Kensie had not been home much. He would have thought that it would be the separate occasions of Kensie's going and coming that would be remembered—but instead it was more as if some general presence, some light about the house, had been extinguished.

Donal sighed. It seemed he was accumulating people at a steady rate. First Lee. Then the scarfaced el Man had asked to accompany him, when he left Freiland. And now Ian. Well, Ian was a good officer, aside from whatever crippling the death of his twin brother had caused him now. It would be more than easy for Donal to find a place for him. In fact, Donal could use him handily.

Donal punched a stud and turned his mouth to the little grille of the desk's signal unit.

"Eachan Khan Graeme, Graeme-house, South District, Foralie Canton, the Dorsai," he said. "Very glad to hear from you, although I imagine you know how I feel about Kensie. Please ask Ian to come right along.



I will be honored to have him on my staff; and, to tell the truth, I have a real need for someone like him here. Most of the ranking officers I inherited as War Chief have been brow-beaten by these Elders into a state of poor usefulness. I know I won't have to worry about Ian on that score. If he would take over supervision of my training program, he would be worth his weight in diamonds—natural ones. And I could give him an action post either on my personal

staff, or as Patrol Chief. Tell Mother I'll write Mor but that the letter may be a bit sketchy right at present. I am up to my ears in work at the moment. These are good officers and men; but they have been so beaten about the ears at every wrong move that they will not blow their nose without a direct order. My love to all at home. Donal."

He pressed the button again, ending the recording and sealing it ready for delivery with the rest of the out-

going signals his office sent daily on their way. A soft chime from his desk reminded him that it was time for him to speak once more with Eldest Bright. He got up and went out.

The ranking elder of the joint government of the Friendly Worlds of Harmony and Association maintained his own suite of offices in Government Center, not more than half a hundred meters from the military nerve center. This was not fortuitous. Eldest Bright was a Militant, and liked to keep his eye on the fighting arm of God's True Churches. He was at work at his desk, but rose as Donal came in.

He advanced to meet Donal, a tall, lean man, dressed entirely in black, with the shoulders of a back-alley scrapper and the eyes of a Torquemada, that light of the Inquisition in ancient Spain.

"God be with you," he said. "Who authorized this requisition order for sheathing for the phase shift grids on the sub-class ships?"

"I did," said Donal.

"You spend credit like water." Bright's hard, middle-aged face leaned toward Donal. "A tithe on the churches, a tithe of a tithe on the church members of our two poor planets is all we have to support the business of government. How much of this do you think we can afford to spend on whims and fancies?"

"War, sir," said Donal, "is hardly a matter of whims and fancies."

"Then why shield the grids?" snapped Bright. "Are they liable to

rust in the dampness of space? Will a wind come along between the stars and blow them apart?"

"Sheathe, not shield," replied Donal. "The point is to change their appearance; from the ball-and-hammer to the cylindrical. I'm taking all ships of the first three classes through with me. When they come out before the Exotics, I want them all looking like ships of the first class."

"For what reason?"

"Our attack on Zombri cannot be a complete surprise," explained Donal, patiently. "Mara and Kultis are as aware as anyone else that from a military standpoint it is vulnerable to such action. If you'll permit me—" He walked past Bright to the latter's desk and pressed certain keys there. A schematic of the Procyon system sprang into existence on one of the large gray walls of the office, the star itself in outline to the left. Pointing, Donal read off the planets in their order, moving off to the right. "Coby—Kultis—Mara—St. Marie. As close a group of habitable planets as we're likely to discover in the next ten generations. And simply because they are habitable—and close, therefore—we have this escaped moon, Zombri, in its own eccentric orbit lying largely between Mara and St. Marie—"

"Are you lecturing me?" interrupted Bright's harsh voice.

"I am," said Donal. "It's been my experience that the things people tend to overlook are those they learned earliest and believe they know best. Zombri is not habitable and too small for terraforming. Yet it exists

like the Trojan horse, lacking only its complement of latter-day Achaeans to threaten the Procyon peace—”

“We’ve discussed this before,” broke in Bright.

“And we’ll continue to discuss it,” continued Donal, pleasantly, “whenever you wish to ask for the reason behind any individual order of mine. As I was saying—Zombri is the Trojan horse of the Procyon city. Unfortunately, in this day and age, we can hardly smuggle men onto it. We can, however, make a sudden landing in force and attempt to set up defenses before the Exotics are alerted. Our effort, then, must be to make our landing as quickly and effectively as possible. To do that best, is to land virtually unopposed in spite of the fact that the Exotics will undoubtedly have a regular force keeping its eye on Zombri. The best way to achieve that, is to appear in overwhelming strength, so that the local commanders will realize it is foolish to attempt to interfere with our landing. And the best way to put on a show of strength is to appear to have three times the ships of the first class that we do have. Therefore the sheathing.”

Donal stopped talking, walked back across to the desk, and pressed the keys. The schematic disappeared.

“Very well,” said Bright. The tone of his voice showed no trace of defeat or loss of arrogance. “I will authorize the order.”

“Perhaps,” said Donal, “you’ll also authorize another order to remove the

Conscience Guardians from my ships and units.”

“Heretics—” began Bright.

“Are no concern of mine,” said Donal. “My job is to get these people ready to mount an assault. But I’ve got over sixty per cent native troops of yours under me; and their morale is hardly being improved, on an average of three trials for heresy a week.”

“This is a church matter,” said Bright. “Is there anything else you wished to ask me, War Chief?”

“Yes,” said Donal. “I ordered mining equipment. It hasn’t arrived.”

“The order was excessive,” said Bright. “There should be no need to dig in anything but the command posts, on Zombri.”

Donal looked at the black-clad man for a long moment. His white face and white hands—the only uncovered part of him, seemed rather the false part than the real, as if they were mask and gloves attached to some black and alien creature.

“Let’s understand each other,” said Donal. “Aside from the fact that I don’t order men into exposed positions where they’ll be killed—whether they’re mercenaries or your own suicide-happy troops, just what do you want to accomplish by this move against the Exotics?”

“They threaten us,” answered Bright. “They are worse than the heretics. They are Satan’s own legion—the deniers of God.” The man’s eyes glittered like ice in the sunlight. “We must establish a watchtower

over them that they may not threaten us without warning; and we may live in safety."

"All right," said Donal. "That's settled then. I'll get you your watchtower. And you get me the men and equipment I order without question and without delay. Already, these hesitations of your government mean I'll be going into Zombri ten to fifteen per cent understrength."

"What?" Bright's dark brows drew together. "You've got two months yet until Target Date."

"Target Dates," said Donal, "are for the benefit of enemy intelligence. We'll be jumping off in two weeks."

"Two weeks!" Bright stared at him. "You can't be ready in two weeks."

"I earnestly hope Colmain and his General Staff for Mara and Kultis agrees with you," replied Donal. "They've the best land and space forces between the stars."

"How?" Bright's face paled with anger. "You dare to say that our own organization's inferior?"

"Facing facts is definitely preferable to facing defeat," said Donal, a little tiredly. "Yes, Eldest, our forces are definitely inferior. Which is why I'm depending on surprise rather than preparation."

"The Soldiers of the Church are the bravest in the universe!" cried Bright. "They wear the armor of righteousness and never retreat."

"Which explains their high casualty rate, regular necessity for green replacements, and general lower level of training," Donal reminded him.

"A willingness to die in battle is not necessarily the best trait in a soldier. Your mercenary units, where you've kept them free of native replacements, are decidedly more combat-ready at the moment. Do I have your backing from now on, for anything I feel I need?"

Bright hesitated. The tension of fanaticism relaxed out of his face, to be replaced by one of thoughtfulness. When he spoke again his voice was cold and businesslike.

"On everything but the Conscience Guardians," he answered. "They have authority, after all, only over our own Members of the Churches." He turned and walked around once more behind his desk. "Also," he said, a trifle grimly, "you may have noticed that there are sometimes small differences of opinion concerning dogma between members of differing Churches. The presence of the Conscience Guardians among them makes them less prone to dispute, one with the other—and this you'll grant, I'm sure, is an aid to military discipline."

"It's effective," said Donal, shortly. He turned himself to go. "Oh, by the way, Eldest," he said. "That true Target Date of two weeks from today. It's essential it remain secret; so I've made sure it's known only to two men and will remain their knowledge exclusively until an hour or so before jump-off."

Bright's head came up.

"Who's the other?" he demanded sharply.

"You, sir," said Donal. "I just

made my decision about the true date a minute ago."

They locked eyes for a long minute.

"May God be with you," said Bright, in cold, even tones.

Donal went out.

## WAR CHIEF II

Genéve bar-Colmain was, as Donal had said, commander of the best land-and-space forces between the stars. This because the Exotics of Mara and Kultis, though they would do no violence in their own proper persons, were wise enough to hire the best available in the way of military strength. Colmain, himself, was one of the top military minds of his time, along with Galt on Freiland, Kamal on the Dorsai, Issac on Venus, and that occasional worker of military miracles—Dom Yen, Supreme Commander on the single world of Ceta where William had his home office. Colmain had his troubles (including a young wife who no longer cared for him) and his faults (he was a gambler—in a military as well as a monetary sense) but there was nothing wrong with either the intelligence that had its home in his skull, or the Intelligence that made its headquarters in his Command Base, on Mara.

Consequently, he was aware that the Friendly Worlds were preparing for a landing on Zombri within three weeks of the time when the decision to do so had become an accomplished fact. His spies adequately inform-

ed him of the Target Date that had been established for that landing; and he himself set about certain plans of his own for welcoming the invaders when they came.

The primary of these was the excavation of strong points on Zombri, itself. The assault troops would find they had jumped into a hornet's nest. The ships of the Exotic fleet would, meanwhile be on alert not too far off. As soon as action had joined on the surface of Zombri, they would move in and drive the space forces of the invasion inward. The attackers would be caught between two fires; their assault troops lacking the chance to dig in and their ships lacking the support from below that entrenched ground forces could supply with moon-based heavy weapons.

The work on the strong points was well under way one day as, at the Command Base, back on Mara, Colmain was laying out a final development of strategy with his General Staff. An interruption occurred in the shape of an aide who came hurrying into the conference room without even the formality of asking permission first.

"What's this?" growled Colmain, looking up from the submitted plans before him with a scowl on his swarthy face, which at sixty was still handsome enough to provide him compensation in the way of other female companionship for his wife's lack of interest.

"Sir," said the aide, "Zombri's attacked—"

"What?" Colmain was suddenly

on his feet; and the rest of the heads of the General Staff with him.

"Over two hundred ships, sir. We just got the signal." The aide's voice cracked a little—he was still in his early twenties. "Our men on Zombri are fighting with what they have—"

"Fighting?" Colmain took a sudden step toward the aide almost as if he would hold the man personally responsible. "They've started to land assault troops?"

"They've landed, sir—"

"How many?"

"We don't know sir—"

"Knucklehead! How many ships went in to drop men?"

"None, sir," gasped the aide. "They didn't drop any men. They all landed."

"Landed?"

For the fraction of a second, there was no sound at all in the long conference room.

"Do you mean to tell me—" shouted Colmain. "They landed two hundred ships of the first class on Zombri?"

"Yes, sir," the aide's voice had thinned almost to a squeak. "They're cleaning out our forces there and digging in—"

He had no chance to finish. Colmain swung about on his Battle Ops and Patrol Chiefs.

"Hell and damnation!" he roared. "Intelligence!"

"Sir?" answered a Freilander officer halfway down the length of the table.

"What's the meaning of this?"

"Sir—" stammered the officer, "I don't know how it happened. The latest reports I had from Harmony, three days ago—"

"Damn the latest reports. I want every ship and every man we can get into space in five hours! I want every patrol ship of any class to rendezvous with everything we can muster here, off Zombri in ten hours. Move!"

The General Staff of the Exotics moved.

It was a tribute to the kind of fighting force that Colmain commanded that they were able to respond at all in so short a time as ten hours to such orders. The fact that they accomplished the rendezvous with nearly four hundred craft of all classes, all carrying near their full complement of crews and assault troops, was on the order of a minor miracle.

Colmain and his chief officers, aboard the flagship, regarded the moon, swimming below them in the Control Eye of the ship. There had been reports of fighting down there up until three hours ago. Now there was a silence that spoke eloquently of captured troops. In addition, Observation reported—in addition to the works instigated by the Exotic forces—another hundred and fifty newly mined entrances in the crust of the moon.

"They're in there," said Colmain, "ships and all." Now that the first shock of discovery had passed, he was once more a cool and capable commander of forces. He had even found time to make a mental note

to get together with this Dorsai, Graeme. Supreme command was always sweet bait to a brilliant youngster; but he would find the Council of United Churches a difficult employer in time—and the drawback of a subordinate position under Colmain himself could be compensated for by the kind of salary the Exotics were always willing to pay. Concerning the outcome of the actual situation before him, Colmain saw no real need for fear, only for haste. It was fairly obvious now that Graeme had risked everything on one bold swoop. He had counted on surprise to get him onto the moon and so firmly entrenched there that the cost of rooting him out would be prohibitive—before reinforcements could arrive.

He had erred only—and Colmain gave him full credit for all but that single error—in underestimating the time it would take for Colmain to gather his strength to retaliate. And even that error was forgiveable. There was no other force on the known worlds that could have been gotten battle-ready in under three times the time.

"We'll go in," said Colmain. "All of us—and fight it out on the moon." He looked around his officers. "Any comment?"

"Sir," said his Blue Patrol chief, "maybe we could wait them out up here?"

"Don't you think it," said Colmain, good-humoredly. "They would not come and dig in, in our own system, without being fully supplied for long enough to establish an outpost

we can't take back." He shook his head. "The time to operate is now, gentlemen, before the infection has a chance to get its hold. All ships down—even the ones without assault troops. We'll fight them as if they were ground emplacements."

His staff saluted and went off to execute his orders.

The Exotic fleet descended on the moon of Zombri like locusts upon an orchard. Colmain, pacing the floor of the control room in the flagship—which had gone in with the rest—grinned as the reports began to flood in of strong points quickly cleaned of the Friendly troops that had occupied them—or dug in ships quickly surrendering and beginning to dig themselves out of the deep shafts their mining equipment had provided for them. The invading troops were collapsing like cardboard soldiers; and Colmain's opinion of their commander—which had risen sharply with the first news of the attack—began to slip decidedly. It was one thing to gamble boldly; it was quite another to gamble foolishly. It appeared from the morale and quality of the Friendly troops that there had, after all, been little chance of the surprise attack succeeding. This Graeme should have devoted a little more time to training his men and less to dreaming up dramatic actions. It was, Colmain thought, very much what you might expect of a young commander in supreme authority for the first time in his life.

He was enjoying the roseate glow

of anticipated victory when it was suddenly all rudely shattered. There was a sudden ping from the deep-space communicator and suddenly two officers at the board spoke at once.

"Sir, unidentified call from—"

"Sir, ships above us—"

Colmain, who had been watching the Zombri surface through his Control Eye, jabbed suddenly at his buttons and the seeker circuit on it swung him dizzily upward and toward the stars, coming to rest abruptly, on full magnification, on a ship of the first class which unmistakably bore the mark of Friendly design and manufacture. Incredulously, he widened his scope, and in one swift survey, picked out more than twenty such ships in orbit around Zombri, within the limited range of his ground-restricted Eye, alone.

"Who is it?" he shouted, turning on the officer who had reported a call.

"Sir—" the officer's voice was hesitantly incredulous, "he says he's the Commander of the Friendlies."

"What?" Colmain's fist came down on a stud beside the controls of the Eye. A wall screen lit up and a lean young Dorsai with odd, indefinite-colored eyes looked out at him.

"Graeme!" roared Colmain. "What kind of an imitation fleet are you trying to bluff me with?"

"Look again, commander," answered the young man. "The imitations are digging their way out down there on the surface by you. They're my

sub-class ships. Why'd you think they would be taken so easily? These are my ships of the first class—one hundred and eighty-three of them."

Colmain jammed down the button and blanked the screen. He turned on his officers at the control panel.

"Report!"

But the officers had already been busy. Confirmations were flooding in. The first of the attacking ships had been dug out and proved to be sub-class ships with sheathing around their phase-shift grids, little weapons, and less armor. Colmain swung back to the screen again, activated it, and found Donal in the same position, waiting for him.

"We'll be up to see you in ten minutes," he promised, between his teeth.

"You've got more sense than that, commander," replied Donal, from the screen. "Your ships aren't even dug in. They're sitting ducks as they are; and in no kind of formation to cover each other as they try to jump off. We can annihilate you if you try to climb up here, and lying as you are we can pound you to pieces on the ground. You're not equipped from the standpoint of supplies to dig in there; and I'm well enough informed about your total strength to know you've got no force left at large that's strong enough to do us any damage." He paused. "I suggest you come up here yourself in a single ship and discuss terms of surrender."

Colmain stood, glaring at the screen. But there was, in fact, no alternative to surrender. He would not

have been a commander of the caliber he was, if he had not recognized the fact. He nodded, finally, grudgingly.

"Coming up," he said; and blanked the screen. Shoulders a little humped, he went off to take the little courier boat that was attached to the flagship for his own personal use.

"By heaven," were the words with which he greeted Donal, when he at last came face to face with him aboard the Friendly flagship, "you've ruined me. I'll be lucky to get the command of five C-class and a tender, on Dunnin's World, after this."

It was not far from the truth.

Donal returned to Harmony two days later, and was cheered in triumph even by the surest of that world's fanatics, as he rode through the streets to Government Center. A different sort of reception awaited him there, however, when he arrived and went alone to report to Eldest Bright.

The head of United Council of Churches for the worlds of Harmony and Association looked up grimly as Donal came in, still wearing the coverall of his battle dress under a barrel-cut jacket he had thrown on hastily for the ride from the spaceport. The platform on which he had ridden had been open for the admiration of the crowds along the way; and Harmony was in the chill fall of its short year.

"Evening, gentlemen," said Donal, taking in not only Bright in the greeting, but two other members of the Council who sat alongside him at his

desk. These two did not answer. Donal had hardly expected them to. Bright was in charge here. Bright nodded at three armed soldiers of the native elite guard that had been holding post by the door and they went out, closing the door behind them.

"So you've come back," said Bright.

Donal smiled.

"Did you expect me to go some place else?" he asked.

"This is no time for humor!" Bright's large hand came down with a crack on the top of the desk. "What kind of an explanation have you got for us, for this outrageous conduct of yours?"

"If you don't mind, Eldest!" Donal's voice rang against the gray walls of the room, with a slight cutting edge the three had never heard before and hardly expected on this occasion. "I believe in politeness and good manners for myself; and see no reason why others shouldn't reciprocate in kind. What're you talking about?"

Bright rose. Standing wide-legged and shoulder-bent above the smooth, almost reflective surface of the gray desk, the resemblance to the back-alley scrapper for the moment outweighed the Torquemada in his appearance.

"You come back to us," he said, slowly and harshly, "and pretend not to know how you betrayed us?"

"Betrayed you?" Donal considered him with a quietness that was almost ominous. "How—betrayed you?"

"We sent you out to do a job."

"I believe I did it," said Donal dryly. "You wanted a watchtower over the Godless. You wanted a permanent installation on Zombri to spot any buildup on the part of the Exotics to attack you. You remember I asked you to set out in plain terms what you were after, a few days back. You were quite explicit about that being just what you wanted. Well—you've got it."

"You limb of Satan!" blared Bright, suddenly losing control. "Do you pretend to believe that you thought that was all we wanted? Did you think the anointed of the Lord would hesitate on the threshold of the Godless?" He turned and stalked suddenly around the desk to stand face to face with Donal. "You had them in your power and you asked them only for an unarmed observation station on a barren moon. You had them by the throat and you slew none of them, when you should have wiped them from the face of the stars, to the last ship—to the last man!"

He paused and Donal could hear his teeth gritting in the sudden silence.

*"How much did they pay you?"* Bright snarled.

Donal stood in an unnatural stillness.

"I will pretend," he said, after a moment, "that I didn't hear that last remark. As for your questions as to why I asked only for the observation station, that was all you had said you wanted. As to why I did not wipe them out—wanton killing is not my

trade. Nor the needless expenditure of my own men in the pursuit of wanton killing." He looked coldly into Bright's eyes. "I suggest you could have been a little more honest with me, Eldest, about what you wanted. It was the destruction of the Exotic power, wasn't it?"

"It was," gritted Bright.

"I thought as much," said Donal. "But it never occurred to you that I would be a good enough commander to find myself in the position to accomplish that. I think," said Donal, letting his eyes stray to the other two black-clad elders as well, "you are hoist by your own petard, gentlemen." He relaxed; and smiling slightly, turned back to Bright. "There are reasons," he said, "why it would be very unwise tactically for the Friendly Worlds to break the back of Mara and Kultis. If you'll allow me to give you a small lesson in power dis—"

"You'll come up with better answers than you have!" burst out Bright. "Unless you want to be tried for betrayal of your employer!"

"Oh, come now!" Donal laughed out loud.

Bright whirled away from him and strode across the gray room. Flinging wide the door by which Donal had entered, and they had exited, he revealed the three elite guard soldiers. He whirled about, arm outstretched to its full length, finger quivering.

"Arrest that traitor!" he cried.

The guards took a step toward Donal—and in that same moment, be-

fore they had any of them moved their own length's-worth of distance toward him—three faint blue beams traced their way through the intervening space past Bright, leaving a sharp scent of ionized air behind them. And the three dropped.

Like a man stunned by a blow from behind, Bright stared down at the bodies of his three guards. He swayed about to see Donal reholstering his handgun.

"Did you think I was fool enough to come here unarmed?" asked Donal, a little sadly. "And did you think I'd submit to arrest?" He shook his head. "You should have wit enough to see now I've just saved you from yourselves."

He looked at their disbelieving faces.

"Oh, yes," he said. He gestured to the open wall at the far end of the office. Sounds of celebration from the city outside drifted lightly in on the evening breeze. "The better forty per cent of your fighting forces are out

there. Mercenaries. Mercenaries who appreciate a commander who can give them a victory at the cost of next to no casualties at all. What do you suppose their reaction would be if you tried me for betrayal, and found me guilty, and had me executed?" He paused to let the thought sink in. "Consider it, gentlemen."

He pinched his jacket shut and looked grimly at the three dead elite guards; and then turned back to the elders, again.

"I consider this sufficient grounds for breach of contract," he said. "You can find yourself another War Chief."

He turned and walked toward the door. As he passed through it, Bright shouted after him.

"Go to them, then! Go to the Godless on Mara and Kultis!"

Donal paused and turned. He inclined his head gravely.

"Thank you, gentlemen," he said. "Remember — the suggestion was yours."

TO BE CONCLUDED

## IN TIMES TO COME

Most of us tend to use the phrase "But I don't think . . ." fairly commonly. Randall Garrett has next month's lead story, and its title is "But, I don't Think . . ." and it concerns a man to whom that phrase applied very accurately. He might, also, have called it "The Burning Barn," come to think of it . . . Anybody in the audience have a definition for the term "slavery" that really satisfies him . . .? *And* fits the historical realities of slaves?

THE EDITOR.



# UNBORN TOMORROW

Illustrated by Freas



BETTY looked up from her magazine. She said mildly, "You're late."

"Don't yell at me, I feel awful," Simon told her. He sat down at his desk, passed his tongue over his teeth in distaste, groaned, fumbled in a drawer for the aspirin bottle.

He looked over at Betty and said, almost as though reciting, "What I need is a vacation."

"What," Betty said, "are you going to use for money?"

"Providence," Simon told her whilst fiddling with the aspirin bottle, "will provide."

"Hm-m-m. But before providing vacations it'd be nice if Providence turned up a missing jewel deal, say. Something where you could deduce that actually the ruby ring had gone down the drain and was caught in the elbow. Something that would net about fifty dollars."

Simon said, mournful of tone, "Fifty dollars? Why not make it five hundred?"

"I'm not selfish," Betty said. "All

I want is enough to pay me this week's salary."

"Money," Simon said. "When you took this job you said it was the romance that appealed to you."

"Hm-m-m. I didn't know most sleuthing amounted to snooping around department stores to check on the clerks knocking down."

Simon said, enigmatically, "Now it comes."

There was a knock.

Betty bounced up with Olympic agility and had the door swinging wide before the knocking was quite completed.

He was old, little and had bug eyes behind pince-nez glasses. His suit was cut in the style of yester-year but when a suit costs two or three hundred dollars you still retain caste whatever the styling.

Simon said unenthusiastically, "Good morning, Mr. Oyster." He indicated the client's chair. "Sit down, sit."

The client fussed himself with Betty's assistance into the seat, bug-

BY MACK REYNOLDS

*Unfortunately, there was only one thing he could bring back from the wonderful future . . . and though he didn't want to . . . nevertheless he did. . . .*

eyed Simon, said finally, "You know my name, that's pretty good. Never saw you before in my life. Stop fussing with me, young lady. Your ad in the phone book says you'll investigate anything."

"Anything," Simon said. "Only one exception."

"Excellent. Do you believe in time travel?"

Simon said nothing. Across the room, where she had resumed her seat, Betty cleared her throat. When Simon continued to say nothing she ventured, "Time travel is impossible."

"Why?"

"Why?"

"Yes, why?"

Betty looked to her boss for assistance. None was forthcoming. There ought to be some very quick, positive, definite answer. She said, "Well, for one thing, paradox. Suppose you had a time machine and traveled back a hundred years or so and killed your own great-grandfather. Then how could you ever be born?"

"Confound it if I know," the little fellow growled. "How?"

Simon said, "Let's get to the point, what you wanted to see me about."

"I want to hire you to hunt me up some time travelers," the old boy said.

Betty was too far in now to maintain her proper role of silent secretary. "Time travelers," she said, not very intelligently.

The potential client sat more erect, obviously with intent to hold the floor for a time. He removed the

pince-nez glasses and pointed them at Betty. He said, "Have you read much science fiction, Miss?"

"Some," Betty admitted.

"Then you'll realize that there are a dozen explanations of the paradoxes of time travel. Every writer in the field worth his salt has explained them away. But to get on. It's my contention that within a century or so man will have solved the problems of immortality and eternal youth, and it's also my suspicion that he will eventually be able to travel in time. So convinced am I of these possibilities that I am willing to gamble a portion of my fortune to investigate the presence in our era of such time travelers."

Simon seemed incapable of carrying the ball this morning, so Betty said, "But . . . Mr. Oyster, if the future has developed time travel why don't we ever meet such travelers?"

Simon put in a word. "The usual explanation, Betty, is that they can't afford to allow the space-time continuum track to be altered. If, say, a time traveler returned to a period of twenty-five years ago and shot Hitler, then all subsequent history would be changed. In that case, the time traveler himself might never be born. They have to tread mighty carefully."

Mr. Oyster was pleased. "I didn't expect you to be so well informed on the subject, young man."

Simon shrugged and fumbled again with the aspirin bottle.

Mr. Oyster went on. "I've been

considering the matter for some time and—"

Simon held up a hand. "There's no use prolonging this. As I understand it, you're an elderly gentleman with a considerable fortune and you realize that thus far nobody has succeeded in taking it with him."

Mr. Oyster returned his glasses to their perch, bug-eyed Simon, but then nodded.

Simon said, "You want to hire me to find a time traveler and in some manner or other—any manner will do—exhort from him the secret of eternal life and youth, which you figure the future will have discovered. You're willing to pony up a part of this fortune of yours, if I can deliver a bona fide time traveler."

"Right!"

Betty had been looking from one to the other. Now she said, plaintively, "But where are you going to find one of these characters—especially if they're interested in keeping hid?"

The old boy was the center again. "I told you I'd been considering it for some time. The *Oktoberfest*, that's where they'd be!" He seemed elated.

Betty and Simon waited.

"The *Oktoberfest*," he repeated. "The greatest festival the world has ever seen, the carnival, *feria*, *fiesta* to beat them all. Every year it's held in Munich. Makes the New Orleans Mardi gras look like a quilting party." He began to swing into the spirit of his description. "It originally started in celebration of the wedding of some local prince a century

and a half ago and the Bavarians had such a bang-up time they've been holding it every year since. The Munich breweries do up a special beer, *Marzenbräu* they call it, and each brewery opens a tremendous tent on the fair grounds which will hold five thousand customers apiece. Millions of liters of beer are put away, hundreds of thousands of barbecued chickens, a small herd of oxen are roasted whole over spits, millions of pair of *weisswurst*, a very special sausage, millions upon millions of pretzels—"

"All right," Simon said. "We'll accept it. The *Oktoberfest* is one whale of a wingding."

"Well," the old boy pursued, into his subject now, "that's where they'd be, places like the *Oktoberfest*. For one thing, a time traveler wouldn't be conspicuous. At a festival like this somebody with a strange accent, or who didn't know exactly how to wear his clothes correctly, or was off the ordinary in any of a dozen other ways, wouldn't be noticed. You could be a four-armed space traveler from Mars, and you still wouldn't be conspicuous at the *Oktoberfest*. People would figure they had D.T.'s."

"But why would a time traveler want to go to a—" Betty began.

"Why not! What better opportunity to study a people than when they are in their cups? If *you* could go back a few thousand years, the things you would wish to see would be a Roman Triumph, perhaps the Rites of Dionysus, or one of Alexander's

orgies. You wouldn't want to wander up and down the streets of, say, Athens while nothing was going on, particularly when you might be revealed as a suspicious character not being able to speak the language, not knowing how to wear the clothes and not familiar with the city's layout." He took a deep breath. "No ma'am, you'd have to stick to some great event, both for the sake of actual interest and for protection against being unmasked."

The old boy wound it up. "Well, that's the story. What are your rates? The *Oktoberfest* starts on Friday and continues for sixteen days. You can take the plane to Munich, spend a week there and—"

Simon was shaking his head. "Not interested."

As soon as Betty had got her jaw back into place, she glared unbelievingly at him.

Mr. Oyster was taken aback himself. "See here, young man, I realize this isn't an ordinary assignment, however, as I said, I am willing to risk a considerable portion of my fortune—"

"Sorry," Simon said. "Can't be done."

"A hundred dollars a day plus expenses," Mr. Oyster said quietly. "I like the fact that you already seem to have some interest and knowledge of the matter. I liked the way you knew my name when I walked in the door; my picture doesn't appear often in the papers."

"No go," Simon said, a sad quality in his voice.

"A fifty thousand dollar bonus if you bring me a time traveler."

"Out of the question," Simon said.

"But *why*," Betty wailed.

"Just for laughs," Simon told the two of them sourly, "suppose I tell you a funny story. It goes like this:

I got a thousand dollars from Mr. Oyster (Simon began) in the way of an advance, and leaving him with Betty who was making out a receipt, I hustled back to the apartment and packed a bag. Hell, I'd wanted a vacation anyway, this was a natural. On the way to Idlewild I stopped off at the Germany Information Offices for some tourist literature.

It takes roughly three and a half hours to get to Gander from Idlewild. I spent the time planning the fun I was going to have.

It takes roughly seven and a half hours from Gander to Shannon and I spent that time dreaming up material I could put into my reports to Mr. Oyster. I was going to have to give him some kind of report for his money. Time travel yet! What a laugh!

Between Shannon and Munich a faint suspicion began to simmer in my mind. These statistics I read on the *Oktoberfest* in the Munich tourist pamphlets. Five million people attended annually.

Where did five million people come from to attend an overgrown festival in comparatively remote Southern Germany? The tourist sea-

son is over before September 21st, first day of the gigantic beer bust. Nor could the Germans account for any such number. Munich itself has a population of less than a million, counting children.

And those millions of gallons of beer, the hundreds of thousands of chickens, the herds of oxen. Who ponied up all the money for such expenditures? How could the average German, with his twenty-five dollars a week salary?

In Munich there was no hotel space available. I went to the Bahnhof where they have a hotel service and applied. They put my name down, pocketed the husky bribe, showed me where I could check my bag, told me they'd do what they could, and to report back in a few hours.

I had another suspicious twinge. If five million people attended this beer bout, how were they accommodated?

The *Theresienwiese*, the fair ground, was only a few blocks away. I was stiff from the plane ride so I walked.

There are seven major brewers in the Munich area, each of them represented by one of the circuslike tents that Mr. Oyster mentioned. Each tent contained benches and tables for about five thousand persons and from six to ten thousands pack themselves in, competing for room. In the center is a tremendous bandstand, the musicians all *lederhosen* clad, the music as Bavarian as any to be found

in a Bavarian beer hall. Hundreds of peasant garbed *fräuleins* darted about the tables with quart sized earthenware mugs, platters of chicken, sausage, kraut and pretzels.

I found a place finally at a table which had space for twenty-odd beer bibbers. Odd is right. As weird an assortment of Germans and foreign tourists as could have been dreamed up, ranging from a seventy- or eighty-year-old couple in Bavarian costume, to the bald-headed drunk across the table from me.

A desperate waitress bearing six mugs of beer in each hand scurried past. They call them *masses*, by the way, not mugs. The bald-headed character and I both held up a finger and she slid two of the *masses* over to us and then hustled on.

"Down the hatch," the other said, holding up his *mass* in toast.

"To the ladies," I told him. Before sipping, I said, "You know, the tourist pamphlets say this stuff is eighteen per cent. That's nonsense. No beer is that strong." I took a long pull.

He looked at me, waiting.

I came up. "Mistaken," I admitted.

A *mass* or two apiece later he looked carefully at the name engraved on his earthenware mug. "Löwenbräu," he said. He took a small notebook from his pocket and a pencil, noted down the word and returned the things.

"That's a queer looking pencil you have there," I told him. "German?"

"Venusian," he said. "Oops, sorry. Shouldn't have said that."

I had never heard of the brand so skipped it.

"Next is the Hofbräu," he said.

"Next what?" Baldy's conversation didn't seem to hang together very well.

"My pilgrimage," he told me. "All my life I've been wanting to go back to an *Oktoberfest* and sample every one of the seven brands of the best beer the world has ever known. I'm only as far as Löwenbräu. I'm afraid I'll never make it."

I finished my *mass*. "I'll help you," I told him. "Very noble endeavor. Name is Simon."

"Arth," he said. "How could you help?"

"I'm still fresh—comparatively. I'll navigate you around. There are seven beer tents. How many have you got through, so far?"

"Two, counting this one," Arth said.

I looked at him. "It's going to be a chore," I said. "You've already got a nice edge on."

Outside, as we made our way to the next tent, the fair looked like every big State-Fair ever seen, except it was bigger. Games, souvenir stands, sausage stands, rides, side shows, and people, people, people.

The Hofbräu tent was as overflowing as the last but we managed to find two seats.

The band was blaring, and five thousand half-swacked voices were roaring accompaniment.

*In Muenchen steht ein Hofbräubaus!  
Eins, Zwei, G'sufa!*

At the *G'sufa* everybody upped with the mugs and drank each other's health.

"This is what I call a real beer bust," I said approvingly.

Arth was waving to a waitress. As in the Löwenbräu tent, a full quart was the smallest amount obtainable.

A beer later I said, "I don't know if you'll make it or not, Arth."

"Make what?"

"All seven tents."

"Oh."

A waitress was on her way by, mugs foaming over their rims. I gestured to her for refills.

"Where are you from, Arth?" I asked him, in the way of making conversation.

"2183."

"2183 where?"

He looked at me, closing one eye to focus better. "Oh," he said. "Well, 2183 South Street, ah, New Albuquerque."

"New Albuquerque? Where's that?"

Arth thought about it. Took another long pull at the beer. "Right across the way from old Albuquerque," he said finally. "Maybe we ought to be getting on to the Pschorrbräu tent."

"Maybe we ought to eat something first," I said. "I'm beginning to feel this. We could get some of that barbecued ox."

Arth closed his eyes in pain. "Vegetarian," he said. "Couldn't possibly eat meat. Barbarous. Ugh."

"Well, we need some nourishment," I said.

"There's supposed to be considerable nourishment in beer."

That made sense. I yelled, "*Fräulein! Zwei neu bier!*"

Somewhere along in here the fog rolled in. When it rolled out again, I found myself closing one eye the better to read the lettering on my earthenware mug. It read Augustinerbräu. Somehow we'd evidently navigated from one tent to another.

Arth was saying, "Where's your hotel?"

That seemed like a good question. I thought about it for a while. Finally I said, "Haven't got one. Town's jam packed. Left my bag at the Bahnhof. I don't think we'll ever make it, Arth. How many we got to go?"

"Lost track," Arth said. "You can come home with me."

We drank to that and the fog rolled in again.

When the fog rolled out, it was daylight. Bright, glaring, awful daylight. I was sprawled, complete with clothes, on one of twin beds. On the other bed, also completely clothed, was Arth.

That sun was too much. I stumbled up from the bed, staggered to the window and fumbled around for a blind or curtain. There was none.

Behind me a voice said in horror, "Who . . . how . . . oh, *Wodo*, where'd you come from?"

I got a quick impression, looking out the window, that the Germans were certainly the most modern, futuristic people in the world. But I

couldn't stand the light. "Where's the shade," I moaned.

Arth did something and the window went opaque.

"That's quite a gadget," I groaned. "If I didn't feel so lousy, I'd appreciate it."

Arth was sitting on the edge of the bed holding his bald head in his hands. "I remember now," he sorrowed. "You didn't have a hotel. What a stupidity. I'll be phased. Phased all the way down."

"You haven't got a handful of aspirin, have you?" I asked him.

"Just a minute," Arth said, staggering erect and heading for what undoubtedly was a bathroom. "Stay where you are. Don't move. Don't touch anything."

"All right," I told him plaintively. "I'm clean. I won't mess up the place. All I've got is a hangover, not lice."

Arth was gone. He came back in two or three minutes, box of pills in hand. "Here, take one of these."

I took the pill, followed it with a glass of water.

And went out like a light.

Arth was shaking my arm. "Want another *mass*?"

The band was blaring, and five thousand half-swacked voices were roaring accompaniment.

*In Muenchen steht ein Hofbräuhaus!*  
*Eins, Zwei, G'sufa!*

At the *G'sufa* everybody upped with their king-size mugs and drank each other's health.

My head was killing me. "This is where I came in, or something," I groaned.

Arth said, "That was last night." He looked at me over the rim of his beer mug.

Something, somewhere, was wrong. But I didn't care. I finished my *mass* and then remembered. "I've got to get my bag. Oh, my head. Where did we spend last night?"

Arth said, and his voice sounded cautious, "At my hotel, don't you remember?"

"Not very well," I admitted. "I feel lousy. I must have dimmed out. I've got to go to the Bahnhof and get my luggage."

Arth didn't put up an argument on that. We said good-by and I could feel him watching after me as I pushed through the tables on the way out.

At the Bahnhof they could do me no good. There were no hotel rooms available in Munich. The head was getting worse by the minute. The fact that they'd somehow managed to lose my bag didn't help. I worked on that project for at least a couple of hours. Not only wasn't the bag at the luggage checking station, but the attendant there evidently couldn't make heads nor tails of the check receipt. He didn't speak English and my high school German was inadequate, especially accompanied by a blockbusting hangover.

I didn't get anywhere tearing my hair and complaining from one end of the Bahnhof to the other. I drew a blank on the bag.

And the head was getting worse by the minute. I was bleeding to death through the eyes and instead of butterflies I had bats in my stomach. Believe me, *nobody* should drink a gallon or more of Marzenbräu.

I decided the hell with it. I took a cab to the airport, presented my return ticket, told them I wanted to leave on the first obtainable plane to New York. I'd spent two days at the *Oktoberfest*, and I'd had it.

I got more guff there. Something was wrong with the ticket, wrong date or some such. But they fixed that up. I never was clear on what was fouled up, some clerk's error, evidently.

The trip back was as uninteresting as the one over. As the hangover began to wear off—a little—I was almost sorry I hadn't been able to stay. If I'd only been able to get a room I *would* have stayed, I told myself.

From Idlewild, I came directly to the office rather than going to my apartment. I figured I might as well check in with Betty.

I opened the door and there I found Mr. Oyster sitting in the chair he had been occupying four—or was it five—days before when I'd left. I'd lost track of the time.

I said to him, "Glad you're here, sir. I can report. Ah, what was it you came for? Impatient to hear if I'd had any results?" My mind was spinning like a whirling dervish in a revolving door. I'd spent a wad of his money and had nothing I could think of to show for it; nothing but

the last stages of a grand-daddy hangover.

"Came for?" Mr. Oyster snorted. "I'm merely waiting for your girl to make out my receipt. I thought you had already left."

"You'll miss your plane," Betty said.

There was suddenly a double dip of ice cream in my stomach. I walked over to my desk and looked down at the calendar.

Mr. Oyster was saying something to the effect that if I didn't leave today, it would have to be tomorrow, that he hadn't ponied up that thousand dollars advance for anything less than immediate service. Stuffing his receipt in his wallet, he fussed his way out the door.

I said to Betty hopefully, "I suppose you haven't changed this calendar since I left."

Betty said, "What's the matter with you? You look funny. How did your clothes get so mussed? You tore the top sheet off that calendar yourself, not half an hour ago, just before this marble-missing client came in." She added, irrelevantly, "Time travelers yet."

I tried just once more. "Uh, when did you first see this Mr. Oyster?"

"Never saw him before in my life," she said. "Not until he came in this morning."

"This morning," I said weakly.

While Betty stared at me as though it was *me* that needed candling by a head shrinker preparatory to being sent off to a pressure cooker, I fished in my pocket for my wallet, counted

the contents and winced at the pathetic remains of the thousand.

I said pleadingly, "Betty, listen, how long ago did I go out that door —on the way to the airport?"

"You've been acting sick all morning. You went out that door about ten minutes ago, were gone about three minutes, and then came back."

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"See here," Mr. Oyster said (interrupting Simon's story), "did you say this was supposed to be amusing, young man? I don't find it so. In fact, I believe I am being ridiculed."

Simon shrugged, put one hand to his forehead and said, "That's only the first chapter. There are two more."

"I'm not interested in more," Mr. Oyster said. "I suppose your point was to show me how ridiculous the whole idea actually is. Very well, you've done it. Confound it. However, I suppose your time, even when spent in this manner, has some value. Here is fifty dollars. And good day, sir!"

He slammed the door after him as he left.

Simon winced at the noise, took the aspirin bottle from its drawer, took two, washed them down with water from the desk carafe.

Betty looked at him admiringly. Came to her feet, crossed over and took up the fifty dollars. "Week's wages," she said. "I suppose that's one way of taking care of a crackpot. But I'm surprised you didn't take his money and enjoy that vacation you've been yearning about."

"I did," Simon groaned. "Three times."

Betty stared at him. "You mean—" Simon nodded, miserably.

She said, "But *Simon*. Fifty thousand dollars bonus. If that story was true, you should have gone back again to Munich. If there was one time traveler, there might have been—"

"I keep telling you," Simon said bitterly, "I went back there three times. There were hundreds of them. Probably thousands." He took a deep breath. "Listen, we're just going to have to forget about it. They're not going to stand for the space-time continuum track being altered. If something comes up that looks like it might result in the track being changed, they set you right back at the beginning and let things start—

for you—all over again. They just can't allow anything to come back from the future and change the past."

"You mean," Betty was suddenly furious at him, "you've given up! Why this is the biggest thing— Why the fifty thousand dollars is nothing. The future! Just think!"

Simon said wearily, "There's just one thing you can bring back with you from the future, a hangover compounded of a gallon or so of Marzenbräu. What's more you can pile one on top of the other, and another on top of that!"

He shuddered, "If you think I'm going to take another crack at this merry-go-round and pile a fourth hangover on the three I'm already nursing, all at once, you can think again."

THE END

# THE ANALYTICAL LABORATORY

The February issue was a close race all the way. It went like this:

PLACE	STORY	AUTHOR	POINTS
1.	The Pirates of Ersatz (Pt. 1)	Murray Leinster	2.03
2.	Hi Diddle Diddle!	Calvin M. Knox	2.13
3.	The Stoker and the Stars	John A. Sentry	2.88
4.	Missing Link	Frank Herbert	3.50
5.	Accidental Death	Peter Baily	3.91

THE EDITOR.

# THE



## REFERENCE LIBRARY

BY P. SCHUYLER MILLER

### IS IT SF?

**N** ANY list of supposed science fiction and fantasy books, there is usually room for a four-way wrangle among collectors. Is the book SF? Is it fantasy? Is it "border line"? Is it "straight" fiction?

The question is brought up again

with the reprinting by Rinehart of the long novel about an imaginary continent, "Islandia," by Austin Tappan Wright (1018 pp.; \$5.95). This book was first published in 1942, eleven years after its author's death, and at the time and since it built up a small but dogged band of disciples of the sort that do homage to Edison's "Worm Ouroboros," Tolkien's "Fellowship of the Ring," or for that matter, Conan and Sherlock Holmes. You'll find the book in the indexes and on the dealers' lists as rare SF,

and there is a general critical agreement that the book is a major achievement of the imagination—for sheer bulk, if nothing else. But is it science fiction?

On the surface, it is not—no more so than any of the multitude of books about mythical countries in Central Europe or Central America, where intrigue and skulduggery take place. Wright's Islandia is a nation that doesn't exist, on a continent that doesn't exist, somewhere—in my own judgment—in the southern Indian Ocean. We know it's not there, but he pretends that it is, that the world knows about it, and that in 1908 the United States sends a young Harvard graduate, John Lang, as the first American consul. The hermit kingdom is soon to decide whether to open its borders to "civilization" or go back into the isolation of its own way of life, with the accompanying danger that Germany—and others—will then force commercial contacts in the name of protection against the wild blacks on the rest of the Karain Continent.

If Islandia or Karain were infested with weird monsters or man-eating plants, I am sure there would be no question of the book's being admitted to the respectable company of SF. If the people of Islandia had a weirdly showy sort of religion, with venomous priests and glamorous high-priestesses, it would be in. But the flora and fauna of the continent are one thing that its creator rather scamped—though he drew a geological map of the place—and the Is-

landian religion is quiet and personal.

Austin Wright invented Islandia as a boy, and built it up in his imagination through his adolescence and adult years. It was a family game that took him over. He wrote a four hundred-page history of the country and its people through more than eleven hundred years . . . drew up genealogies, all-important in a culture where the continuity of the family is the key . . . made detailed maps . . . tried his hand at the national literature of fables. A little of what was in these Islandia papers you can learn from the very rare little companion study by Basil Davenport, "Introduction to Islandia," that Rinehart published with the 1942 edition. The papers themselves were stolen or lost in Philadelphia, and there's a \$1,000 reward for anyone who can find them.

Because the world he created is not fantastic or off this planet, but realistic and ordinary, Austin Wright's novel cannot strictly be considered science fiction. Yet he used the methods of a good SF writer like Robert Heinlein, to create a strange society in full detail, building up its internal structure and logic just as carefully as ever Heinlein created a world in the future or among the stars. The struggle over the Islandian concepts of love, that jets John Lang into one romantic tangle after another, is just as significant and valid a plot-element as if the Islandians were green and had four arms. Austin Wright used the methods of science fiction to

write his colossus of the imagination. Since Islandia doesn't—and didn't—exist, it can at least be called fantasy.

Now what are we to say about Ray Bradbury, whose latest short story collection, "A Medicine for Melancholy," is just off the Doubleday presses (240 pp.; \$3.75)? Only half of the twenty-two stories in this book—whose English edition has the title, "The Day It Rained Forever," was published first, and apparently has a slightly different set of stories—can be called either science fiction or fantasy. The rest are "straight" stories about emotional problems of ordinary people, some of them Mexicans, some Irish, some small-town folk from the Middle West of Bradbury's novel, "Dandelion Wine."

A good many readers won't accept anything Bradbury writes as science fiction; they call it fantasy, and they don't like fantasy so they don't like Bradbury.

Now, it is quite true that Bradbury's first and probably his most original stories were out-and-out fantasies like his memorable "Homecoming," dealing with openly supernatural creatures and situations. As he turned to science fiction themes, in his "Martian Chronicles" especially, he carried over the same poetic style and attitudes, and the same emotional approach that he had developed in his fantasies. In this collection, "Dark They Were, and Golden-Eyed" describes the slow and subtle ways in which a family from Earth become physically and mentally the

Martians they have never seen. Fantasy? Yes—but drugs and diet can bring about strange metamorphoses. And what can be more homely and down-to-Earth than "The Strawberry Window," in which another Mars family manages to hang onto its Earthliness?

Is "The Dragon"—in which two knights, searching their medieval moors for a dragon, are run down by a passing train—a fantasy or a time-paradox story? Do we call "The Shore Line at Sunset" a fantasy because its two American tourists find a mermaid washed up on the Mexican shore—or do we let Bradbury convince us that there are mermaids, and that they are like this? The story, in any case, isn't about mermaids but about the contrasting effects this one has on the two men.

You'll find as middle-of-the-road SF as you'll ever get from Bradbury in his three rocket tales, again about the emotional reactions of ordinary people to situations of the rocket age. In "The End of the Beginning," a middle-aged couple try to understand why their son is going up to build the first space station. In "Icarus Montgolfier Wright," the pilot of the first Moon rocket dreams out the history of Man's attempts to fly. In "The Gift," a boy in space gets a wonderful Christmas present. Then there is a bitter glimpse of an anti-intellectual future, "The Smile," in which the people of a little town gather to destroy the Mona Lisa, and through it the past they hate.

Probably the best of the science fic-

tion in the book is "All Summer in a Day," in which the only girl in a Venusian colony who has ever seen the Sun, is locked in a closet by her schoolmates on the one day in the year when the Sun comes out. The framework is SF: the story is man's cruelty to man. Or a time-paradox theme in "A Scent of Sarsaparilla," now rather familiar: there's a gimmick in the "door" in the attic, through which a man regains his lost past, but Bradbury is saying that the past can be regained through memory and such tales as his.

The one pure gimmick story in the book, and probably the least successful, is "Fever Dream," in which a boy discovers that he is infected by a strange disease that slowly converts his body into itself. The best story, as such, is one of the "straight" ones, "In a Season of Calm Weather," in which a man with a passion for Picasso discovers the artist sketching a fantastic frieze on a Riviera beach, where the tide will soon obliterate it.

Wright used the methods of science fiction to write a straight novel of character. Bradbury uses the methods of fantasy and emotion to write both science fiction and straight fiction.

What about something whose classification can't be mistaken, then? The new, 8th "Best from Fantasy and Science Fiction" (Doubleday & Co., Garden City; 1959; 240 pp.; \$3.75) provides Anthony Boucher with a wonderful swan song as editor of that magazine and of these

annual anthologies taken from it. It seems to me the best of the series, and it is almost wholly science fiction. Yet what do you say about a story like Fritz Leiber's "A Deskful of Girls," whose psychiatrist-villain offers a rational explanation—and demonstration—for the things we ordinarily call "ghosts"?

In this story, and over and over in the collection, you are forced to the conclusion that you must take the author on his own terms. If he tells you that the events of the story are supernatural, occurring without law or logic—though magic has both—then it can be classed with fantasy. If he tells you that he is describing the strange but inevitable consequences of natural laws that we may not now understand, he's writing science fiction. And a ghost story can be written with the calm logic of an SF puzzle yarn, while SF can have the emotional drive and dazzlement of fantasy. Both—as the English demonstrate on occasion—can be handled "straight" like any other fiction.

But to this best of the "Bests." Its own "best," for my money, is a very short time-travel story by another Englishman, Brian Aldiss, "Poor Little Warrior!", which by sheer writing power makes memorable the old situation of the man who goes back in time to shoot a dinosaur. Then there's "Ministering Angels," the hilarious answer of C. S. Lewis to Arthur Clarke's suggestion that we will have to send some "nice girls" into space to meet the sexual needs

of predominately male space crews and colonists.

Humor, humanity, and variety are the earmarks of the book, as they are of the magazine. Poul Anderson's "Backwardness" has some things to say about the kind of people who will rove space for a Galactic Federation, dealing with backward folk like ourselves. Damon Knight's "Eprimav" is an expanded gag that is itself a gem of a yarn, and a companion to the punning adventures of "Ferdinand Feghoot," recounted by Grendel Briarton. Isaac Asimov has a parody of turn-of-the-century novels and endocrinology-cumaphodisia, "The Up-to-Date Sorcerer," that isn't up to his high par. And there's a bizarre "lost" story by none other than Jules Verne, "Gil Braltar," and a parody of Charles Fort, "A New Lo!" by Ron Goulart. Avram Davidson's "The Grantha Sighting" is probably the most penetrating and funniest flying saucer report on or in the books.

Humanity, I said. By this time, of course, you know about Zenna Henderson's stories of the strangely endowed People and their efforts to find a place among us. "Captivity" shows us one of their children, driven to the breaking point and rescued by an understanding teacher. Shirley Jackson's "The Omen" is simply a strange little story of how an old lady's good will and carelessness save the life of a beaten-down girl. Kit Reed's "The Wait" shows us another young girl, overwhelmed by her mother's selfishness, forced

into acceptance of a very strange cultural pattern in the Deep South. And there's both humor and a certain humanity in John Shepley's "Gorilla Suit," the fantasy of a gorilla who applies for a job as one.

Another "best of the best" is one of C. M. Kornbluth's last stories, "Theory of Rocketry," which shows us with subtle frankness the kind of schools we may be building, and the kind of young people they will produce. It's one of his most penetrating stories, far ahead of "Space Merchants," and emphasizes the tragedy of the author's sudden death. Finally, from the flamboyant Alfred Bester, we have "The Men Who Murdered Mohammed," a dazzling, dizzying variant on time travel.

Variety? You've seen that in the descriptions I've given you. For good measure, the book is rounded out by several bits of short, light verse, ranging from Karen Anderson's tribute to Henry Kuttner, whose untimely death came so close to Kornbluth's, to Anthony Brode's summary of the SF market, "The Better Bet."

Science fiction can be categorized only by the criterion that it cannot be categorized. Seemingly supernatural situations and themes can be rationalized—as, indeed, the parapsychologists would rationalize the entire field of the supposed supernatural, as natural occurrences whose laws we do not yet understand. The *F&SF* anthology covers just about the whole range under one set of covers; Bradbury pushes the Frontier in one direction, using the light, bright touch

of fantasy and the macabre with pure SF themes; Wright created a mythical society out of whole cloth, and by making Islandia the equivalent of Graustark rather than Barsoom, excluded his novel from the shelves of many readers.

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**THE SPACE WILLIES**, by Eric Frank Russell.

**SIX WORLDS YONDER**, by Eric Frank Russell. Ace Books, N. Y., No. D-315. 1958. 131 + 125 pp. 35¢

Here's a bargain in pure science fictive fun, nothing pretentious but all breezy and fast-moving, and all from this magazine.

Russell is one Englishman who writes American-style SF better than most Americans. The novel, expanded from "Plus X" which was here in 1956, is a variant on his Avalon book, "The Wasp," and I think a more enjoyable story. Space scout John Leeming, cracking up his little ship in the midst of the enemy Combine, hornswoggles and bulldozes his alien captors into sending him back home by inventing the "Willies" and the "Eustaces" and giving the poor dumb brutes a bad case of the willies.

The six stories on the flip side of the book are not connected; the last one is another switch on the theme of "Willies." They were here in 1954-56. "The Waitabits" describes the snail-paced people of Eterna who couldn't be conquered because mankind couldn't wait up for 'em. There should have been more stories about

the bizarre worlds turned up by the roving Boydell. "Tieline" is a very short, simple, honestly sentimental story about a man alone on a far world. "Top Secret" is a howling farce in which interstellar communications fall flat on their code books. "Nothing New" shows us peering with compassion at a have-not world, and "Into Your Tent I'll Creep," is a straight-faced consideration of whether men or dogs rule the Earth. Finally, "Diabologic" gives us another space scout professionally driving a powerful, hostile alien civilization nuts.

It's the best bargain from Ace in some time.

---

**STATION IN SPACE**, by James Gunn. Bantam Books, N. Y., No. A-1825. 1958. 156 pp. 35¢

The five stories in this book comprise a series on the psychological problems of conquering space, scattered through four different science-fiction magazines between 1955 and 1958. It is the kind of thing that Arthur Clarke and Murray Leinster both did, but where they were quiet and documentary these stories are intense.

In "The Cave of Night," which opens the book, the world is lashed into support of the lagging satellite program when the pilot of a manned rocket becomes marooned in orbit, and a rescue ship must be built to save him. Actually, a hoax has been

rigged; the supposed martyr is a voluntary prisoner, and his tomb in space is empty. In "Hoax," the second story, a young cadet assigned to the "Doughnut," the first space station, is beaten into shape by his reaction to this fraud. "The Big Wheel" of part three is a second station at twenty-two thousand miles, and the heroes of the story are the men who build it.

Psychologist Lloyd Phillips is the protagonist of the last two stories. In "Powder Keg" he is sent to the "Doughnut" to find out whether its garrison has cracked up mentally to the point where it can't be trusted to drop bombs if a new war seems imminent—or where it may start the war on its own, by bombing Russia without instructions, out of sheer jumpiness. Amos Danton, the green cadet of "Hoax," commands the station and teaches the psychologist some psychology. In the final episode, "Space is a Lonely Space," Phillips is as deeply involved in the cause of space-conquest as any man in the Big Wheel, as they sweat out the cruel disintegration of the crew of the third ship to attempt the long Mars voyage. But at the end he has the solution which will open "the most beautiful but hostile territory mankind has ever attempted to conquer."

It's a well done group of stories that somehow fail to be top quality. If they had been, I am sure the entire series would have been published—and promoted—in *Galaxy*, where they started. Perhaps "Hoax," the

second and most ordinary in the lot, was responsible for the break. "Station in Space" wouldn't lose much if it were left out, and if the author had taken the trouble to tie the events of the last year and a half into the first story.

---

**HAVE SPACESUIT—WILL TRAVEL**, by Robert A. Heinlein. Charles Scribner's Sons, New York. 1958. 276 pp. \$2.95

If you missed this latest Heinlein novel when it was serialized last summer in *Fantasy & Science Fiction*, don't let it go by now. Because Scribners choose to publish it as a juvenile, you'll have to look for it among the teen-age books, but *F&SF* put no such label on it, and—like all his "juveniles,"—this is prime adult fare.

Kip Russell, trying for a trip to the Moon in a soap contest, wins a decrepit spacesuit instead. He refurbishes it, gives it a field test—and finds himself on the way to the Moon with a twelve-year-old genius (female) named Peewee, an intergalactic cop whom Peewee calls "the Mother Thing," some very nasty extraterrestrials with a secret Moon-base who get the title of "Worm-faces," and other assorted personnel. The complications involve a flight across the empty deserts of the Moon with insufficient oxygen, another escape from a prison cell on Pluto, some training on a planet of Vega.

and a trial—involving a Neanderthal and a Roman centurion—before an intergalactic trial board in the Lesser Magellanic Cloud, with the survival of Earth at stake.

Could anyone but Heinlein throw so much into the hopper and make every detail, however minute, rounded and convincing? I guess not. Even so, I'd rather see him operating a little less lavishly and more in depth, devoting more time to realizing one fully developed situation and setting. Good as it is, I'd swap two or three like "Have Spacesuit" or "Citizen of the Galaxy" for more of the glorious fun in "The Rolling Stones," or for further tribulations of the harassed interplanetary diplomats whom we met in "The Star Beast."

---

WAR OF THE WING-MEN, by Poul Anderson.

THE SNOWS OF GANYMEDE, by Poul Anderson. Ace Books, N. Y. No. D-303. 1958. 160+96 pp. 35¢

The longer and better half of this all-Anderson Ace double was published here last year as "The Man Who Counts." It is a problem-adventure story, in which three Terrans—a space pilot, a planetary queen, and a hulk of a tycoon—crash on the sea-world Diomedes, in the midst of a bitter war between two winged races, one of seamen, the other of migrant cattle-raisers. Their food supply won't last, they can't eat Diomedean food, and they have to get to

Earth's lone trading post on the other side of the planet before they starve.

How this is done is the plot, and Poul Anderson pours in the complications and action as he knows well how to do, but the thing that gives the story stature is the gradually emerging portrait of Nicholas van Rijn, the "man who counts." (This story would probably be banned in Russia.)

"Snows of Ganymede," on the other hand, is a pretty routine and rather short filler for the other half of the book. A group of Planetary Engineers accept a contract to terraform Ganymede, get entangled with a society that has a fanatical religious base and a vicious behind-the-scenes element, escape, hide with outlaws, and so on.

"Wing Men" is worth the price.

P.S. Two historical characters named Miller and de Camp are credited with inventing the rapid-fire dart thrower that's used in the struggle between the two winged clans. Actually, I think it was Dr. John Clark's idea, evolved from some Three-Star Hennessey with just a whiff of Toynbee.

---

STEPSONS OF TERRA, by Robert Silverberg.

A MAN CALLED DESTINY, by Lan Wright. Ace Books, N. Y., No. D-311. 1958. 128+128 pp. 35¢

Both these stories are time-passers of the interstellar intrigue variety,

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satisfactory as entertainment but nothing to remember.

I think I enjoyed the Wright opus a little more than Silverberg's. It's the van Vogtian type of yarn about the stellar engineer with unrecognized powers that make him the key to mighty goings-on, with several different factions fighting with and over him. There are the Traders, as represented by fat old Pietro Dellora, the most interesting character in the story—while he lasts. There is law and order, represented by cops on Rigel Five and in London. There is a mysterious teleporting murderer, who seems to be Pietro's son, Alfredo. There is "Preacher" Judd, Earth's top politician. There is Richard Argyle's lost, dead wife. And it all makes sense in the end.

"Stepsons" is the story of Baird Ewing, emissary to Mother Earth from one of Man's farthest-flung planets. The Galaxy is about to be invaded by aliens from Andromeda, and the little world of Corwin wants help—but Ewing finds that Earth has gone effete and flabby, and is about to be taken over by the Sirian colonists who actually run the planet. Then he learns that a dilettante circle of Earthlings has the secret of time travel, and presently there are at least four different Ewings entangled in the mess, each behaving just a little bit differently from the others. It all comes out, too, but I'm not quite sure about the sense. One of the Ewings seems to have gotten lost somewhere . . .

FIVE GALAXY SHORT NOVELS, edited by H. L. Gold. Doubleday & Co., Inc., Garden City, N. Y. 1958. 287 pp. \$3.95

If there's any common characteristic of well-edited, competing magazines—like this one and *Galaxy*—it is that they develop strong characteristics but keep their variety. These *Galaxy* novelettes, published between 1951 and 1958, on the face of it have too much sameness: four of the five are stories in which an underground is struggling against a future hierarchy. Nevertheless, their authors are individual enough so that there is no sameness at all in the stories.

Best of the book is its one maverick, James E. Gunn's "Wherever You May Be," in which a young psychologist tangles with a toothsome—and temperamental—Ozark witch. This would have been a natural for *Unknown* in the good old days, but it's as modern as today in its picture of a back-country girl whose strong ESP powers get out of control—or *in* control—whenever she becomes unhappy. Abbie is a real character, in the literary and direct senses, and a joy to know.

So, for that matter, is Granny of Theodore Sturgeon's "Granny Won't Knit," which is a far better story than his pb "Cosmic Rape" from the same magazine. Here is a bizarre but consistent future society in which a mildly rebellious young man keeps having disturbing dreams of people who appear to violate all the principles of "decent" society. The world

in which poor Roan Walsh struggles against temptation to unorthodoxy has an ingrown preoccupation with privacy that is as unwholesome as anything Fritz Leiber has dredged out of the societal unconscious.

Third best is J. T. McIntosh's "Mind Alone," a story of a future interstellar war between Earth and one of its colonial worlds. Its heroine awakes on Venus as a synthetic person, her entire personality having been erased and an artificial one installed by the psychologists of the enemy world, to hide a military secret. So "Muriel Martin" must learn who she is and what she knew.

Shortest—really a short story—is the opener, F. L. Wallace's "Tangle Hold," in which a man who has been parboiled to the point of death, so that the police could print a spy circuit on the flesh under his new artificial skin, tries to pull off a one-man revolt. It's interesting but not particularly memorable. Damon Knight's "World Without Children" is routine for him, as an inept set of revolutionists try to overturn the edict against children which has been the result of near-immortality.

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BRIGANDS OF THE MOON, by Ray Cummings. Ace Books, New York. No. D-324. 224 pp. 35¢

For a long time I've been a heavy partisan of Ray Cummings, and his "Man On the Meteor" in *Science and Invention* was the first science

fiction I encountered after Jules Verne, at the impressionable age of twelve.

This rather subdued—for Cummings—space opera was in the Clayton Astounding back in 1930, and I believe there was a hardback edition the following year. It was not and is not one of his best. Although the plots of Cummings' yarns were almost identical he livened them up with elements of color and imagination that earned him a place in the Munsey magazines, beside Burroughs, Merritt, Leinster and a few others. A style in which free-floating clauses and phrases served for sentences has infuriated some critics, but has always seemed to me to be a kind of stream-of-consciousness technique that would have been accepted if the words had been run together with no punctuation at all.

For the record, you have a secret expedition on the Moon in search of some fabulously valuable radioactive ore—a set of villainous Martian and renegade Terrestrial brigands out to get it—no fewer than three beautiful girls, Earthian, Martian and Venusian—a small corps of heroes led by Gregg Haljan,—and assorted murder, mutiny and mayhem involving a marooning on an asteroid, a crash on the Moon, invisibility cloaks, curved-light rays, ray pistols, and personal combat. But it doesn't move the way Cummings stories used to: I'm getting old and crabbed, I guess.

THE END

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live; how-to-live was a built-in, genetically-determined pattern in him. The mammals were born ignorant, but not stupid; a reptile was born stupid, but not ignorant. The reptile was born inherently incapable of learning—but also with a built-in fund of information. The mammals represented the great splitting-off in that respect; a mammal could learn as an individual.

Naturally, the reptiles got clobbered. A mammal could learn how a particular variety of reptile behaved—and every member of that variety would behave the same way. If a reptile had learned how a variety of mammals behaved . . . he'd be mistaken. The individual mammals learned their ways of life individually, and that changed from generation to generation. Reptilian behavior patterns could change only by genetic mutation; mammalian patterns could change from year to year, with each new crop of cubs. Long before a reptilian variety could evolve a defense against a mammalian technique of attack, the mammalian cubs would be using a different system.

The reptiles were, so to speak, crystalline; their form and pattern was determined by fundamental structure. The mammals were thermosetting plastics; each new generation was molded to a different form, not determined by its fundamental structure. (But limited by that structure, nonetheless. Bakelite can't stand as much heat as a quartz crystal, nor is it as hard nor as strong. And bakelite

can't be remolded as a thermoplastic can—but, on the other hand, it makes fine ashtrays because it does not yield to moderate heat.)

Most human individuals retain the mammalian characteristic of being moldable *once-and-only-once*. When the normal human being is educated and conditioned, he is, thereby, committed to that way of life.

Now this is a spectrum affair; some individuals are absolutely incapable of *any* remolding. They're as rare, however, as the individuals who are capable of indefinite, repeated, and rapid remolding. Few thermoplastics can stand the repeated remolding glass can; most can be remolded a few times, but with some impairment of clarity, strength, or elasticity each time.

It is in this fact that Science and most-human-individuals are inherently incompatible. The fundamental nature of Science is to explore for and find new methods of doing things, new understandings that lead to new ways of life.

So long as the pace of progress is slow enough that the old way remains useful for sixty years or so, while the new way takes sixty years or so to be introduced—the children can learn the new way, while the adults do not *have* to be remolded.

When the rate of change increases to a point such that a way-of-life comes in, takes over the entire culture, and is itself replaced within twenty years, however . . . then living individuals must be remolded during their adult lives.

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*And most human beings in the world today cannot do that.*

For not less than one hundred thousand years, the human species lived in ritual-taboo type cultures; stability, once molded, was the optimum characteristic. That made for true cradle-to-grave security; a baby learned How To Live In The Culture; when he tottered to his grave, taken off by advanced senility, that exact, precise, and unaltered How To Live worked exactly the same way. He could learn once, and only once, and rely for all his lifetime on that learning. In such a culture "change" is defined as "evil."

In a rapidly progressing world, that's impossible.

Science has, as its fundamental

dedication, increased learning—which means change.

It is inherently, inescapable, and unalterably incompatible with Security. It cannot be Science and produce no change.

The human individual who is chronosetting—who can learn once-and-only-once—is broken, destroyed, by forces that reshape him, by powerful changing forces.

Then Science is inherently—inescapably—a menace to the very existence of chronosetting individuals. There simply can be no compromise; Science causes change, or it isn't Science—and a chronosetting individual does not change, without destruction. A human being can't breathe chlorine and live; if chlorine doesn't have the

high reactivity it does, then it isn't chlorine.

If it can be shown that the majority of human individuals are, in fact, essentially chronosetting . . . then the point that Science is inherently destructive to the majority of human beings in the world today is made.

Notice, however, that that is *not* the same as saying that Science is destructive to the *human race*. It isn't; it's beneficial to the *race*, since it immensely benefits those individuals who *can* learn, relearn, and relearn. It permits them to achieve much more, much more rapidly. The greatest good of the greatest number *is not necessarily the greatest good for the race!*

Lincoln's famous remark, "God must love the Common Man; He made so many of them," must be modified. On that sort of statistical argument, God must love dead men still more; there's even more of them. In considering the greatest number, and their greatest good, *we must consider all future descendants.*

Now it's intuitively probable that a race adapted by five thousand generations of breeding in a ritual-taboo system will have a strong tendency, a strong genetic tendency, toward the characteristics most suitable to a ritual-taboo environment. And that's the learn-once-and-stick-with-it characteristic.

The people of the United States are *not* a proper statistical sample of *homo sapiens*; they're a heavily selected sample. Starting with the Pilgrims,

every European that came over here manifested a highly abnormal behavior; they broke with the ritual-taboos, the patterns, of their childhood culture, came over here, and *knowingly undertook to learn a new way of life*. Every immigrant who came here in the early days, without exception, manifested that characteristic. (The deportees who were dumped in Georgia in the early days got dumped because they had already broken with their native cultural pattern—i.e., were rebellious. The same applies to the Australian deportees. Their intention was to change the home culture; the home culture resisted, and kicked them out. But they had the fundamental characteristic of wanting to learn a new way of life—of being chronoplastic, not chronosetting.) If they had not manifested that characteristic, they wouldn't have come here.

Some of the later immigrants had a far lower level of that characteristic. When a large Italian colony is established in an area, an Italian can immigrate to that colony with relatively small change of way-of-life. The same for any other cultural-enclave colony. The change from Berlin to a German community in New York City is not like the change from Seventeenth Century Europe to the howling wilderness of New England.

So the United States started with a very highly selected population—all selected for the characteristic of chronoplasticity. The huge open areas of the continent, offering lots of reward for chronoplastic pioneers who



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moved in, encouraged the characteristic.

But . . . the characteristic is not the norm in the human race; stability, not change, is the norm.

Take a population of individuals selected for a particular characteristic, let them intermarry . . . and the characteristic rapidly attenuates. Select ten thousand midgets, isolate them on a desert island of adequate size, and three generations later there will be a relatively normal population. There will be some excess of midgets, of course, but nothing spectacular—and certainly not a population of midgets.

The reason's simple; each individual selected was abnormal in his own genetic line—his ancestors were of normal size. His children will show the genetic norm, not his short characteristic.

The United States started as a population selected for chronoplasticity.

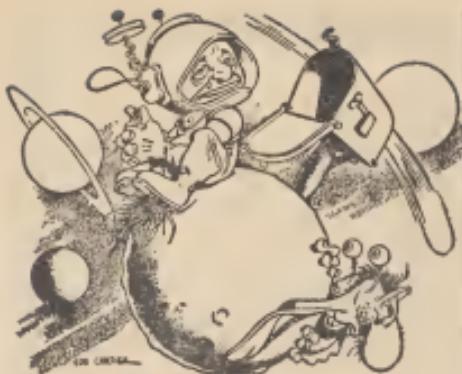
It's returning toward the human norm—which is chronosetting.

And Science is the inherent enemy of the chronosetting individual.

Russia is, just now, in quite a different situation. As of 1918, the population was almost purely chronosetting, but with a vengeance—it was a peasant-dominated population, and the peasant is in the perfect spot to learn and live by one-and-only-one way of life.

Russia didn't succeed in deporting her chronoplastic minority who wanted to change the home culture; Siberia was distant, but not inaccessible enough, and the deportees kept leaking back. And in 1918 the chronoplastic minority exploded.

What happened in the next forty years involved the death and destruction of something like eighty million people. Oh, don't be misled—in a population of about one hundred fifty million, over a period of forty years,



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how many people would you expect to die? Somewhat over half, wouldn't you?

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Some eight million peasants died of starvation—by Stalin's orders. There's been a lot of weeping and screaming about that—but a little thinking about it might pay, too. The peasants had determined to force the new government to go back to the old ways—being chronosetting themselves, it was natural. Their method was simple; if they didn't raise food, the cities would be starved into submission. So they raised only food enough for themselves.

This simply meant that eight million people were, quite inescapably, going to have to starve to death; no food, no life. And the peasants had not produced the food, so eight million had to starve.

The peasants, of course, intended that the people seeking changes they didn't want should starve; they had food enough for themselves. Stalin's orders couldn't change the fact that somebody was going to starve—it just shifted the starvation from its intended target back to its source. The peasants starved; the cities were simply hungry.

As I say, in a population of one hundred fifty million, over forty years, some eighty million people can be expected to die. But if you shift the pressures around a bit . . . the ones who die will shift around. The chronosetting individuals in Russia have had an extremely rugged generation; it's been a period of immense change.

Russia, as of now, has a very abnormally high percentage of chronoplastic individuals. The chronosetting individuals simply couldn't endure it. The United States started that way, by reason of selected immigration. Russia's gotten that way, in the last forty years, by selective rejection; those who couldn't change, were broken by the fact of change.

Russia, which previously did not get anywhere technically, despite many brilliant and creative individuals, has, suddenly, manifested the characteristic of a highly scientific

nation. It can be predicted that it won't last; unless the violent pressures of change that break down chronosetting individuals are maintained and continued, the normal majority of chronosetting individuals will appear in the next generations.

And they don't like Science; they like Gadgetry. They don't like space travel; they like color television. They don't like fundamental research; they like new and better face powders and better tranquilizers. They don't want *some* way to get to Mars; they want a *smoother* way from Minsk to Pinsk.

Science is their enemy; instead of leading to better washing machines, it leads to fluorocarbon coatings that make washing almost unnecessary, and put an end to the laundry industry, so that thousands of people have to learn a new way of life—thousands of chronosetting people who *can't* learn a new way!

There used to be buggy-whip manufacturers; Science didn't help them make better buggy whips—it produced automobiles and put them out of that way of life. Gadgetry would have improved their buggy whips, and increased sales no end.

There used to be quite a few refrigerator repairmen making a living servicing household refrigerators. They've had to learn a new way of life—they aren't repairable any more. Sealed units run a lot longer without any service, and it's better to replace than repair.

It isn't a question of whether Science causes unemployment; it doesn't,



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over-all. It constantly opens new opportunities.

But that isn't what a chronosetting individual needs, or can even use. He *can't* learn a new way of life. He learned once; he has, now, exhausted his potential-to-learn, as the potential-to-be-molded that a thermosetting plastic has is exhausted when it is first molded. The thermosetting plastic part is unrecoverable scrap.

And so is the chronosetting human being.

That's why they want anti-scientists, not scientists. To say "We need more young scientists to combat Russian science" (and that slightly incredible statement was made, incidentally, by an Argonne National

Laboratories news release! How do you *combat* Russian science? By burning their books? By denying their achievements? To *surpass*, or *out-do* or, even *overtake* . . . yes. But how can you *combat* Science?) doesn't encourage the chronosetting individual. To him, that's fighting fire with fire—which may be fine for the forest, but for the trees that get burned does it matter whether it's Russian fire or American backfire? Does it matter whether it's a Russian discovery or an American discovery that ends the only occupation he knows how to carry out?

The terrible enemy is the Russian scientist, not the *Russian* scientist.

He wants anti-scientists; he doesn't want backfire that will burn him as completely as the fire, he wants fire-extinguishers. He wants someone who can overcome the Scientist, who can obfuscate the issues Science seeks to clarify, befog the truths, generate Doubt where Knowledge should be, and Conviction where Doubt should be. He wants a Champion, a Defender, who will befuddle the Scientist, and obscure truths faster than Science can clarify them. Someone who can stop the pressure of change . . . at least for *his* lifetime.

Machiavelli said, long ago, that the Prince cannot rule in the face of the active opposition of his people. A conqueror can . . . briefly—because his invading people are behind him.

Science cannot rule in the face of the active opposition of the people. And the active opposition of the

chronosetting majority of the human race is absolutely rational, and predictable and valid. It can not be dismissed as meaningless.

And no matter how fine a science education course you offer—the young scientist is directly exposed to the people around him. If they don't want him . . . Science will get only those rare individuals who are chronosetting quasi-scientists. Having once started toward Science, they're unable to learn any other way of life, and all the opprobrium of the majority around them won't stop them. They won't make very good scientists, of course.

It seems to me that Science must recognize the fact that a majority of human beings do not want, and can not tolerate true Science. The fact must be recognized so that it can, like any other fact, be dealt with, and the problem resolved.

One way, of course, is the way it's been done before—kill off the chronosetting majority.

Denying the existence of the problem doesn't work; it doesn't go away, it gets bigger.

Science is anti-democratic; it's a tool useful only to a select group having special characteristics. Gadgetry isn't Science; that is useful democratically.

What are we going to do about the fact that Science is inherently destructive to a majority of the two point five billion human beings now living?

THE EDITOR.

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